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MONTHLY LABOR REVIEW

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The March *Review*

The articles leading this month's *Review* examine the complex role of Hispanics in today's economy. Geoffrey Paulin examines persons of Hispanic origin in their role as consumers. His work rigorously analyzes the existence of statistically significant difference in the general consumption patterns of Hispanic consumers relative to the general population. Peter Cattan's article focuses on the effect of working wives on the incidence of poverty in Hispanic married-couple families. As one might expect, the addition of the wife's salary reduces poverty across all sub-groups of Hispanic families, but the effect is especially pronounced among Mexicans and Cubans.

Allen J. Scott's study of the multimedia industry in southern California shows the complex way the proximity of sophisticated customers, in this case the entertainment industry, a rich academic infrastructure, and dense networks of highly competitive employers and employees can establish vigorous, highly localized industrial clusters.

Thesia I. Garner, Stephanie Shipp, Kathleen Short, Charles Nelson, and Geoffrey Paulin examine the potential impact of recommendations from a National Research Council panel on the methods used to measure poverty. They find that the revised measure yields a poverty population that looks more like the general population. Under the proposed measure, poor families are more likely to be white, to be married-couple, and to have a member in the labor force.

In the latest in a series of studies of earnings and educational attainment, Daniel E. Hecker finds that in 1993 women college graduates earned 82 percent as much as men in the same degree level, major field of study, and age group.

Revised CLS tables

Consumer Price Index (CPI) data appear in tables 2, 28, 29, and 30 of the Current Labor Statistics department in this issue. These data reflect the recent revision of the CPI program as outlined in the December 1996 *Review*. The most visible changes include a new market basket of items to be priced and geographic structure of areas in which prices are surveyed.

Also, in this issue, a new CLS table 27 presents historical data on employee participation in selected employer-provided benefit plans in State and local government and small private establishments.

Fewer work stoppages in 1997

The number of major work stoppages—those involving at least 1,000 workers, dropped last year to a record low of 29. These labor disputes, which include worker initiated strikes and lockouts of workers by their employers, affected about 339,000 workers and resulted in almost 4.5 million days of idleness.

More than three-quarters of the year's lost days stemmed from just four disputes. The United Parcel Service–Teamsters alone accounted for more than 2 million idle days. A dispute between Wheeling Pittsburgh Steel and the United Steelworkers resulted in about three-quarters of a million lost days. Stoppages at General Motors and Chrysler accounted for 360,000 and 307,000 days, respectively, involving members of the United Automobile Workers.

Wages at home and abroad

In a study of 28 foreign economies, trade-weighted hourly compensation costs for production workers in manufacturing edged down to an average of 91 percent of the U.S. cost level in 1996. Labor costs in Europe and Japan remained above U.S. costs, but those in Japan fell below those of Europe for the first time since 1992.

The two countries with the highest dollar compensation costs were Germany and Switzerland at 180 and 160 percent of U.S. costs, respectively. The two lowest cost countries were Sri Lanka (3 percent) and Mexico (8 percent).

Regional range narrows

Unemployment rates dropped in about three-quarter of the States in 1997. All four major regions and 8 of the 9 geographic divisions also recorded declines. North Dakota had the lowest unemployment rate among the States at 2.5 percent, followed by Nebraska, New Hampshire, South Dakota, and Utah. Alaska and the District of Columbia posted the highest rates at 7.9 percent.

At the region and division level, the spread between high and low unemployment rates narrowed in 1997. With an unemployment rate of 4.0 percent, the Midwest region maintained the Nation's lowest unemployment rate for the seventh year in a row. The West, despite experiencing the largest percentage point decline in regional unemployment, reported the highest rate, 5.6 percent. The 1.6-percentage point spread compares with the 2.0-point range between the highest and lowest regional unemployment rates of 1996.

The April *Review*

Next month's issue covers wage inequality in the United States and Canada, the earnings of husbands and wives, developments in the trucking industry, and assessing the Consumer Price Index. □

The editors welcome your comments on articles and other material appearing in the *Monthly Labor Review*. Communications may be sent to the Editor-in-Chief at the addresses on the inside front cover of this issue, faxed to (202) 606–5899, or e-mailed to

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A growing market: expenditures by Hispanic consumers

Spending patterns of Hispanics differ from those of whites or blacks, even when controlling for income, family size, and age; the patterns also differ among the various Hispanic cultures

Geoffrey D. Paulin

The U.S. Hispanic population has increased rapidly in recent years, rising from 6 percent of the population in 1980 to 10 percent in 1995. Projections from the Bureau of the Census indicate that the trend will continue for the next several years, with even their "lowest series" projecting that Hispanics will account for 11 percent of the population in 2000 and 12 percent in 2005.[1] With this growth, consumer spending among Hispanics has become an increasingly important segment of the economy. Data from the Consumer Expenditure Interview Survey (henceforth, "Interview survey") show that Hispanics accounted for less than 5 percent of total consumer spending in 1989 and more than 6 percent in 1994. Given the census projections, the Hispanic share of spending should continue to increase in the coming years.

The term "Hispanic" encompasses persons from many different cultural backgrounds. According to the Interview survey, Hispanics in the United States come from a wide range of geographic areas: Mexico (62 percent), Central or South America (14 percent), Puerto Rico (12 percent), Cuba (5 percent), other areas (8 percent). Given this variety, cultural differences may exist within the larger group that are worth exploring. Such inquiry would be particularly important to those attempting to understand spending patterns in local communities. For example, if the local Hispanic population comprises largely Cuban-Americans and they have different spending patterns than Mexican-Americans (who make up the majority of Hispanics nationwide), then applying the overall Hispanic average to the local community may not provide the insight required to understand local conditions.

This study has two purposes. The first is to examine spending patterns of Hispanics and other groups. Does ethnicity play an important role in expenditure decisions, or are factors such as income, age, and family size dominant? To answer this question, Hispanics are compared with non-Hispanic whites and non-Hispanic blacks. The second purpose is to explore spending patterns *within* the Hispanic community to see if there are major differences by geographic origin. For each purpose, Interview survey data are analyzed in three ways. First, general demographic characteristics (such as age, income, and family size) are compared. Second, expenditure levels and budget allocation (expenditure shares) are examined. Third, regressions are used to study how characteristics are related to expenditures for each of the groups of interest.

Recent literature

In recent years, the role of ethnicity—particularly Hispanic ethnicity—in determining consumer behavior has been recognized in a number of studies. For example, some authors, while not specifically focusing on ethnicity, have at least included it as an independent variable in their analyses.[2] Other studies have included only data from Hispanic families in general,[3] or from one

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specific ethnic subgroup, such as those of Mexican descent.[4] Still other studies attempt to compare Hispanics with non-Hispanics,[5] sometimes using detailed breakdowns of Hispanic ethnicity[6] or specific ethnic subgroups.[7]

These studies examine the Hispanic "market" from different perspectives. Some, for example, are conventional studies of expenditure patterns,[8] while others look at the role of attitudes in the Hispanic market. Scott Koslow and others, for example, examine how Spanish-speaking Hispanics react to advertising and whether they prefer advertisements in Spanish or English. Cynthia Webster examines the role of ethnicity in the decisionmaking process of Hispanic married couples. And, in an especially interesting study of acculturation, Lisa Peñaloza personally observed the behavior of Mexican immigrant families, attempting to answer the question, "How do Mexican immigrants learn to buy products in the United States?"[9]

Additionally, José Medina and others compare attitudes about money for persons from Mexican-American and Anglo-American backgrounds. Respondents are questioned about their perceptions of the power and prestige of money (for example, "I tend to judge people by their money rather than their deeds" or "I behave as if money were the ultimate symbol of success"); retention and time factors ("I put money aside on a regular basis for the future"); distrust or anxiety ("It bothers me when I discover I could have gotten something for less elsewhere"); and quality ("I am willing to spend more to get the very best").[10] Finally, Peter Cattan describes the characteristics of various subgroups of Hispanics (Mexican, Puerto Rican, Cuban, Central or South American, and other Spanish) in the work force. His study investigates differences in both demographics (such as age and education) and labor force statistics (participation, growth rates, and unemployment) between these groups and non-Hispanics.[11]

Although the current article is written in the tradition of those comparing Hispanics with non-Hispanics,[12] issues raised in other articles are worth discussing as well. In particular, what level of ethnicity matters, at least for Hispanics? Cynthia Webster argues that Hispanics can be treated as a homogenous group. Although the term "Hispanic" encompasses individuals from three distinct regions (Mexico, Central or South America, and the Caribbean), representing more than 20 separate nationalities—some with radically different political systems—Webster believes that Hispanics share more similarities as a cultural group than differences. These similarities include shared frustrations, aspirations, and attitudes, beliefs, and behaviors. In this article, the term "Hispanic" is used, even though the data were collected for a specific subset of Hispanics—namely, Mexican-Americans, by far the most common single group, accounting for more than 60 percent of all U.S. Hispanics.[13]

Similarly, Jessie X. Fan and Virginia Solis Zuiker acknowledge that in the United States, Hispanic "heritage ... is rich and diverse," but that "Hispanic groups tend to share similarities in terms of values, beliefs, and attitudes, culture, and self-perception" that can "distinguish the Hispanic population from other ethnic and consumer groups."[14] Also, Janet Wagner and Horatio Soberon-Ferrer examine the issue and evidently conclude that Hispanics are sufficiently homogenous to use as one of the ethnic groups in their analysis (along with Afro-American, European, and "other").[15]

On the other hand, as noted earlier, some studies focus either on one specific subgroup (such as those of Mexican descent[16]) or break down the ethnicity in some detail. Koslow and others provide an interesting example in which the level of ethnic identity is used as a variable in their models exploring reactions to advertising. The data on the respondent's self-identified ethnicity were transformed into a three-level scale such that subjects identifying themselves as a non-United States ethnic (for example, "Mexican") were coded at the low level, while those identifying completely with the United States (for example, "American") were coded at the high level of the scale; those identifying themselves as some mixture of the two (Mexican-American, Hispanic, Chicano, Latino) were coded at the intermediate level.[17] And, as already noted, Cattan breaks the Hispanic group into several subgroups similar to those used in the Interview survey and finds many important differences among them.[18]

Given the dichotomy in the literature, therefore, it seems reasonable to pursue a dual approach here. First, Hispanics as a group can be compared with other groups (white and black) to look for major differences in expenditure patterns. Then, the hypothesis of homogeneity can be specifically tested by comparing Hispanics of different geographic origins with those of Mexican origin, the largest subgroup of Hispanics. In addition, this article contributes to the current literature in other ways as well. First, the data are much more recent than those used by Wagner and Soberon-Ferrer or Fan and Zuiker in their articles.[19] Even if spending patterns among Hispanics have changed little over time, their increasing share of the population will affect aggregate consumer spending. Also, more observations of Hispanics in the data set allows greater ability to find statistically significant differences that were previously unrecognized. Another contribution is the increased precision with which the regressions are specified. In this study, Box-Cox transformations are used on the dependent and income variables to minimize heteroscedasticity.

The data

The Consumer Expenditure Survey data presented in this article are from all families interviewed between January 1994 and December 1995. The Interview component collects data quarterly from about 6,000 consumer units on a rotating-

panel basis. Families selected to participate in the survey may do so for up to five consecutive quarters. Data collected in the first interview are not included in the survey, but are used as a reference to compare responses in the subsequent interview. Each quarter, approximately 20 percent of the sample is rotated out of the survey and a new 20 percent is sampled. Data collected in each quarter are considered independent so that the estimates are not contingent on the responses of families participating in the survey for all five quarters. Although it is designed primarily to measure expenditures for relatively large purchases and expenses that occur on a regular basis, the Interview survey covers about 95 percent of all expenditures.[20] It also gathers information on demographic characteristics, including each respondent's age, education, ethnicity, and occupation, as well as each family's income, composition, and region of residence.

The Interview survey collects information on both the race and ethnic origin of each member of the family. However, for simplicity, families in this study are described as Hispanic, white (non-Hispanic), or black (non-Hispanic), based on the characteristics of the reference person alone.[21] Because Hispanic is an ethnic classification, all families whose reference person is reported as Hispanic are so classified, regardless of race.[22] Families whose reference person's ethnicity is reported to be non-Hispanic[23] are classified as white or black, depending on the race of the reference person. Families of other races whose reference person is not identified as Hispanic are omitted from the sample because they are too heterogeneous to constitute a single group on their own (such as "other").[24] The sample, which includes only white, black, and Hispanic families as defined earlier, is then weighted to reflect the population, representing over 99 million families.[25]

Demographic characteristics

Table 1 shows data on selected characteristics of families by ethnic origin. Hispanics, on average, report slightly higher incomes before taxes ($27,112) than blacks ($25,275), but considerably lower incomes than whites ($38,770).[26] This is particularly interesting considering that Hispanic families have more earners (1.5), on average, than either white (1.3) or black families (1.2). They also have larger families, on average, than whites or blacks, including both more adults and children. The average Hispanic family has 2.1 adults and 1.3 children. For whites, the comparable figures are 1.8 and 0.6, respectively; and for blacks, they are 1.8 and 1.0, respectively.[27] The adults in Hispanic families also tend to be younger than in other families. This is reflected both in the average age of the reference person and in the number of persons in the family who are over age 64. White families, for example, have twice as many persons over age 64 (0.34), on average, as Hispanics (0.17); black families also have more older persons than Hispanic families (0.23).

Although about the same proportions of Hispanics and blacks are homeowners (42 percent versus 43 percent), Hispanics are less likely to own their homes *outright*—that is, without a mortgage—than blacks (14 percent versus 18 percent). Hispanics also are much less likely than whites to own their homes without a mortgage: 69 percent of white families own their own homes, and 27 percent do so without a mortgage.

Fewer than 1 in 50 Hispanic families live in rural areas, compared with 1 in 6 white families and 1 in 16 black families. Hispanics make up the largest share of the immigrant population, and a greater proportion of the Hispanic population is made up of immigrants than other populations.[28] Immigrant families often settle in urban areas because of the availability of jobs, transportation, housing, and other factors.

Family composition is another interesting characteristic to compare by ethnicity. Hispanic consumer units are less likely than non-Hispanic consumer units to consist of a single person, but they are far more likely to include children of the reference person (and spouse, if the reference person is married). Such families account for nearly half of Hispanic consumer units (46 percent), compared with about one-third of non-Hispanics. Additionally, when "conventional" couples are considered (that is, married couples only or married couples with their own children only), more than three-fourths of Hispanic married couples have children, compared with more than half of white married couples and less than two-thirds of black married couples.

Hispanic families, on average, also are less educated than either white or black families. In only 29 percent of Hispanic families is there a reference person who attended college, compared with 36 percent of black families and 51 percent of white families. Also, only one-fourth of Hispanic families have a reference person who has attained at least a high school diploma, compared with about one-third of black and white families. Finally, 45 percent of Hispanic families have a reference person who did not complete high school, compared with 30 percent of black families and 17 percent of white families.

Expenditures analysis

Aggregate expenditures and shares. Given the demographic differences across groups, it is reasonable to expect differences in spending patterns as well. Table 2 shows how aggregate spending in the economy differs by ethnicity—that is, it shows which group accounts for the most and which group accounts for the least expenditures on a particular good or service in the U.S. economy. The table shows that, in total, Hispanics spent about $194 billion per year in 1994–95, while black families spent $247 billion, and white families spent $2.6 trillion over the period.[29] By themselves, however, these numbers provide little insight other than the potential size of

the consumer market for each group. Given that white families represent 81 percent of all consumer units, one would expect them to account for a comparably large share of the total dollars spent. Therefore, examining the *share* of aggregate spending held by each of the groups provides a more meaningful comparison.

The aggregate share of spending accounted for by each group is calculated in a straightforward fashion: the total spending for each of the groups is divided by the total spending for all consumer units. As table 2 also shows, the aggregate share of spending for Hispanic families is 6.4 percent, although they account for 7.8 percent of all consumer units. There are only two categories of expenditures for which Hispanic families spent more than their population share in the 1994–95 economy: food at home (8.9 percent), and public transportation less trips (16.2 percent). For other goods, aggregate shares range from 2.4 percent (other lodging) to 7.5 percent (shelter and utilities).

Black families account for 11.3 percent of all consumer units, yet only for public transportation less trips (28.4 percent) and personal care (14.6 percent) does their aggregate expenditure share exceed their population share. Otherwise, black aggregate shares range from 4.1 percent (other lodging) to 10.6 percent (food at home). For whites, the reverse is true. Accounting for 81 percent of the population, whites spend more than their share on everything except public transpor-tatation (54.4 percent), personal care (79.3 percent), and food at home (80.5 percent). Whites account for the largest share of aggregate spending spending other lodging (93.6 percent).

Table 1. Characteristics of consumer units by race and Hispanic origin of reference person, 1994–95

Characteristics	Total	Hispanic	White	Black
Sample size	38,821	2,940	31,258	4,623
Consumer units represented:				
Number	99,462,243	7,791,811	80,426,699	11,243,733
Percent	100.0	7.8	80.9	11.3
Income before taxes (Complete income reporters only)	$36,372	$27,112	$38,770	$25,275
Age of reference person	48.0	41.0	49.0	45.6
Average number in consumer unit:				
Persons under 18 years	.7	1.3	.6	1.0
Persons 65 years and older	.3	.2	.3	.2
Earners	1.3	1.5	1.3	1.2
Vehicles	1.9	1.6	2.1	1.2
Automobiles	1.2	1.1	1.2	1.0
Other vehicles	.7	.5	.9	.2
Housing characteristics:				
Rooms (excluding bedrooms)	5.7	4.8	5.2	5.2
Bedrooms	2.7	2.4	2.5	2.5
Bathrooms	1.4	1.3	1.2	1.2
Half-baths	.3	.1	.2	.2
Percent distribution				
Housing tenure:				
Homeowner	64.1	42.1	69.3	42.6
With mortgage	37.1	28.0	42.3	25.0
Without mortgage	27.0	14.1	27.0	17.6
Renter	35.9	57.9	30.7	57.4
Race of reference person:				
White	88.4	95.6	100.0	.0
Black	11.6	3.3	.0	100.0
Other	.1	1.1	.0	.0
Education of reference person:				
Some high school or less	20.9	45.0	17.2	30.3
High school graduate	31.8	26.1	32.0	33.7
College graduate	23.7	10.3	26.6	12.3
Family composition:				
Single person	28.3	15.8	29.8	26.4
Husband and wife only	21.8	10.9	24.5	10.3
Husband and wife, own children only	27.0	34.1	27.6	18.0
Single parent	6.7	11.9	4.7	17.2
Other families	16.2	27.3	13.5	28.2
Region				
Northeast	20.2	16.7	21.1	16.0
Midwest	25.6	7.1	27.7	23.2
South	34.3	35.6	31.6	52.3
West	20.0	40.7	19.6	8.4
Degree of urbanization:				
Urban	85.5	98.3	83.2	93.8
Rural	14.5	1.7	16.8	6.2
Working status of reference person:				
Wage or salary earner	65.0	72.1	64.8	61.9
Self-employed	6.0	3.8	6.7	2.9
Retired	18.4	8.6	19.8	15.0
Other not working	10.6	15.5	8.7	20.3

Expenditure shares. Given that Hispanic families have lower average incomes than white families, it is not surprising that their aggregate expenditure shares for most goods and services are less than their population share. Even when comparing average annual expenditures of families from the three groups, white families spend more—at the statistically significant level—than Hispanic families for nearly every good and service measured. A more insightful method of analyzing the data is to compare the proportions of total expenditures allocated to specific categories by the different groups.

Table 2. Aggregate expenditures and shares of expenditures, by race and Hispanic origin, 1994–95

Expenditure category	Expenditures (billions of dollars)				Expenditure shares (in percent)		
	Total	Hispanic	White	Black	Hispanic	White	Black
Number of consumer units	99,462,243	7,791,811	80,426,699	11,243,733	7.8	80.9	11.3
Total expenditures	$3,016.6	$194.1	$2,575.7	$246.8	6.4	85.4	8.2
Food at home	330.6	29.3	266.3	34.9	8.9	80.5	10.6
Housing (less trips)	900.6	64.9	753.7	82.1	7.2	83.7	9.1
Shelter and utilities	747	56.2	619	71.7	7.5	82.9	9.6
Other housing	153.7	8.6	134.6	10.4	5.6	87.6	6.8
Apparel and services	130.8	9.7	107.6	13.5	7.4	82.3	10.3
Transportation (less trips)	553.6	36.1	472.4	45.1	6.5	85.3	8.2
Private	548.2	35.2	469.5	43.6	6.4	85.6	7.9
Public (less trips)	5.5	.9	3.0	1.6	16.2	54.4	28.4
Health care	165.4	7.5	147.7	10.1	4.6	89.3	6.1
Health insurance	83.7	3.7	74.1	5.9	4.5	88.4	7.1
Medical services	54.1	3.0	48.8	2.3	5.5	90.2	4.3
Prescription drugs	20.9	.6	18.8	1.5	2.9	90.1	7.2
Medical supplies	6.7	.2	6.0	.4	3.3	90.5	6.1
Recreation and related expenditures	359.6	17.3	321.9	20.4	4.8	89.5	5.7
Food away from home	122.4	7.0	108.3	7.2	5.7	88.4	5.9
Entertainment	151.0	7.3	134.4	9.3	4.8	89.0	6.1
Reading	16.3	.6	14.9	.9	3.6	91.2	5.2
Transportation (on trips)	30.1	1.5	27.3	1.4	4.9	90.5	4.6
Other lodging	39.7	1.0	37.2	1.6	2.4	93.6	4.1
Other	576.1	29.3	506.0	40.8	5.1	87.8	7.1
Alcohol	26.3	1.4	23.4	1.5	5.4	89.1	5.5
Tobacco and smoking supplies	26.5	1.1	23.2	2.2	4.3	87.5	8.2
Education	41.1	2.2	36.0	2.9	5.2	87.7	7.0
Personal care	26.5	1.6	21.0	3.9	6.1	79.3	14.6
Cash contributions	95.2	3.3	86.0	5.9	3.5	90.3	6.2
Personal Insurance	293.3	15.7	257.2	20.4	5.3	87.7	6.9
Miscellaneous	67.4	4.0	59.3	4.2	5.9	87.9	6.2

In other words, how do Hispanic, white, and black families differ in terms of what they choose to purchase? Table 3 shows that the average Hispanic family spends 15 cents out of every dollar on food at home, while the average white family spends only two-thirds of that amount—10 cents out of every dollar.

Given different incomes among the groups, what can we expect to learn from expenditure share analysis? Based on Engel's proposition of 1857, economists have certain theoretical expectations of what the shares will look like.[30] A civil servant living in Prussia, Engel found that as incomes increased, the proportion of that income spent on food decreased; he also found that regardless of income, the share of income allocated to apparel and housing was fairly stable. Although Engel studied shares of income, and the results in table 3 are for shares of total expenditures, Engel's proposition still provides useful guidance, given subsequent development of economic theory. Exactly 100 years later, in 1957, Milton Friedman developed his "permanent income hypothesis," stating that families do not make expenditure decisions based solely on current earnings, but also on expectations of future earnings.[31] Many recent studies using data from the Consumer Expenditure Survey have used total expenditures as a proxy for "permanent" income, following Friedman's hypothesis.[32]

Even using "permanent" income (total expenditures) as a substitute for "current" income, Engel's findings appear to hold true for many categories. For example, the share for recreation and related expenditures increases with income, indicating that recreation is a *luxury* good as opposed to a *necessity* good. For housing and apparel, also, the proposition appears to hold. Housing expenditures account for 29 percent to 33 percent of each group's budget (although the gap is wider—24 percent to 29 percent for shelter and utilities alone), and the apparel share ranges from 5 percent to 6 percent of total expenditures for each group. The proposition does not hold, however, for food at home. Total expenditures of Hispanic families are sig-nificantly higher than those of blacks, yet the share allocated to food at home by Hispanic families appears to be slightly larger than the share allocated by black families. This apparent violation of Engel's proposition probably stems from the larger family sizes among Hispanics. Because their families are larger than those of the other groups, it is reasonable to expect that, given the same level of income, Hispanic families will spend a greater

Table 3. Average annual expenditures, expenditure shares, and t-statistics by race and Hispanic origin, 1994–95

Expenditure category	Average expenditures							Expenditure share[1]						
	Billions of dollars				t-statistics (absolute values)			Percent				t-statistics (absolute values)		
	All consumer units	Hispanic	White	Black	Hispanic /white	Hispanic /black	White/ black	All consumer units	Hispanic	White	Black	Hispanic /white	Hispanic /black	White/ black
Total expenditures	$30,329	$24,911	$32,025	$21,951	8.23	3.18	14.62	98.3	100.0	100.0	100.0	8.23	3.20	14.62
Food at home	3,324	3,761	3,311	3,104	5.45	5.59	2.08	11.0	15.1	10.3	14.1	8.70	1.33	7.20
Housing (less trips)	9,055	8,325	9,371	7,298	3.15	2.90	9.28	29.9	33.4	29.3	33.2	3.16	.11	3.75
Shelter and utilities	7,510	7,216	7,697	6,375	1.67	2.70	6.71	24.8	29.0	24.0	29.0	4.15	.05	5.24
Other housing	1,545	1,110	1,674	923	6.78	2.03	12.51	5.1	4.5	5.2	4.2	2.25	.62	3.77
Apparel and services	1,315	1,246	1,338	1,198	1.50	.62	2.52	4.3	5.0	4.2	5.5	2.93	1.24	4.73
Transportation (less trips)	5,566	4,632	5,874	4,013	4.62	1.77	6.89	18.4	18.6	18.3	18.3	.25	.22	.06
Private	5,512	4,518	5,837	3,875	4.90	1.85	7.29	18.2	18.1	18.2	17.7	.09	.35	.54
Public (less trips)	55	114	37	138	5.92	1.39	8.59	.2	.5	.1	.6	6.39	2.25	9.34
Health care	1,663	966	1,837	902	15.14	1.04	18.31	5.5	3.9	5.7	4.1	7.45	.78	6.95
Health insurance	842	480	921	526	9.97	.99	12.83	2.8	1.9	2.9	2.4	5.24	2.26	3.40
Medical services	544	380	607	206	4.61	3.45	15.62	1.8	1.5	1.9	.9	1.88	2.79	8.92
Prescription drugs	210	79	234	134	13.91	3.32	6.02	.7	.3	.7	.6	9.83	3.89	1.65
Medical supplies	67	28	75	36	9.22	1.30	6.59	.2	.1	.2	.2	6.43	1.90	2.85
Recreation and related expenditures	3,615	2,219	4,003	1,810	10.79	2.34	17.89	11.9	8.9	12.5	8.2	5.50	.89	8.19
Food away from home	1,231	894	1,346	643	6.53	3.29	14.63	4.1	3.6	4.2	2.9	2.13	1.98	5.88
Entertainment	1,518	937	1,671	825	10.10	1.43	14.34	5.0	3.8	5.2	3.8	4.91	[2]	5.67
Reading	164	75	185	76	16.24	.18	18.25	.5	.3	.6	.3	10.06	1.51	8.99
Transportation (on trips)	303	190	339	122	6.46	2.85	12.36	1.0	.8	1.1	.6	3.26	2.01	6.99
Other lodging	399	123	462	144	11.93	.72	9.71	1.3	.5	1.4	.7	9.40	1.25	6.02
Other	5,262	3,762	6,291	3,625	10.67	.53	11.95	17.3	15.1	19.6	16.5	5.07	1.28	3.56
Alcohol	264	182	291	129	4.87	2.23	12.33	.9	.7	.9	.6	1.96	1.40	5.59
Tobacco and smoking supplies	266	145	288	192	7.80	2.26	6.84	.9	.6	.9	.9	7.80	2.26	6.84
Education	413	276	448	254	3.37	.38	4.16	1.4	1.1	1.4	1.2	1.50	.20	1.26
Personal care	266	207	261	344	5.24	8.12	5.59	.9	.8	.8	1.6	.37	8.49	9.85
Cash contributions	957	426	1,069	524	8.04	1.31	6.87	3.2	1.7	3.3	2.4	5.70	2.08	3.12
Personal Insurance	2,949	2,013	3,198	1,812	8.73	1.38	11.76	9.7	8.1	10.0	8.3	3.52	.27	3.49
Miscellaneous	678	513	737	370	3.92	2.44	11.04	2.2	2.1	2.3	1.7	1.06	1.51	4.38

[1] Detail for expenditure shares may not sum to exactly 100 percent due to rounding.
[2] Value is less than 0.01.

proportion on food at home than either black or white families.

Regression analysis

In addition to income and family size, other characteristics—such as the age and educational attainment level of the reference person—also may influence the allocation of the total family budget. Because many of these characteristics vary with ethnic origin, regression analysis is critical to understanding how these factors are related. Using such analysis, the relationships of expenditures to other variables across ethnic groups can be studied while holding other factors constant. In other words, how might a change in income affect the spending patterns of the average Hispanic, white, or black family when all else (such as age or family size) is equal? In this study, the ordinary least squares regression technique is used.

Description of variables. Regression techniques are used to analyze the following major expenditure categories: food at home, shelter and utilities, apparel and services, transportation (less trips), and recreation and related expenditures. These categories—used as the dependent variables here—are chosen for several reasons. First, they constitute a significant share of the average consumer's expenditures (the minimum is apparel, at about 4 percent for white families). Second, they are chosen for "saliency"—that is, most consumers are expected to incur expenditures for these items with some regularity. Third, each category, though it may contain several different kinds of goods and services (especially recreation and related expenditures), is sufficiently homogeneous that the regression results are meaningful.[33]

In addition to these dependent variables, several independent variables are used, most of which are common to all regressions. The independent variables include the following: total expenditures, age (and age squared) of reference person, number of adults (and number squared), number of children (and number squared), and dummy variables describing the reference person's family type (single person, husband and wife only, single parent, or other family), region of residence (Northeast, Midwest, or West), degree of urbanization (rural), education (less than a high school diploma, some college, or college degree), and working status (self-employed, retired, or not working for reasons other than retirement). The "omitted" categories for these dummy variables include the following: husband and wife with children (family type), South (region of residence), urban (degree of urbanization), high school graduate (education), and wage and salary earner (working status). These variables are omitted, as is traditional when dummy variables are employed, to avoid perfect multicollinearity.

In addition, some of the regressions include independent variables not used in the other regressions. For example, the housing regression contains dummy variables describing housing tenure (owned with no mortgage or renter; owned with a mortgage is omitted) and size of dwelling (number of rooms, bedrooms, bathrooms, and half-baths).[34] The regressions for transportation and recreation and related expenditures also contain variables describing the number of automobiles and other vehicles owned by the consumer unit. These variables are selectively included because, in each case, they will clearly affect expenditures for the dependent variable under study but do not necessarily directly affect other expenditures. The number of bedrooms, for example, will affect housing expenditures, but not those for food at home.

Finally, for both theoretical and empirical reasons, total expenditures are included as a proxy for permanent income. The theoretical reasons were explained earlier (see "expenditure shares" section above), but there are empirical reasons as well. For example, because permanent income incorporates expectations of future earnings, there may be less variability in the relationship between expenditures and permanent income than expenditures and current income.[35] Furthermore, current income is not necessarily fully reported by all families, even by so-called complete reporters. Removing incomplete reporters reduces sample size, and not even in a random fashion, because incomplete reporters are not randomly distributed throughout the Interview survey sample.[36]

Model specification. The goal of the regressions is to obtain parameter estimates that can be used to calculate the marginal propensity to consume (MPC) different goods and services for each ethnic group. Once calculated, the MPC can be used to estimate income elasticity for each good or service to see whether or not there are differences in expenditure patterns by ethnicity. Furthermore, income elasticities can be estimated for each ethnic group by using its own mean income ("unadjusted" estimation) or by using the average income for the sample as a whole ("standardized" estimation) where income is needed to estimate these factors. (See table 4.)

In order to achieve these goals most accurately, Box-Cox transformations are performed on both the dependent variables and the income variables in each of the equations. As noted earlier, this reduces heteroscedasticity. The model, then, is specified as follows:

$$Y^* = \alpha_h + \alpha_w D_w + \alpha_b D_b + \beta_{hj} X_j + \beta_{wj} D_w X_j + \beta_{bj} D_b X_j + e$$

where

Y^* is the (Box-Cox transformation of the) dependent variable;

α_h is the intercept of the regression equation;

α_w, α_b are parameter estimates;

D_w, D_b are dummy variables describing ethnicity (w for white, b for black);

β_{ij} is a vector of parameter estimates for various indepen-

dent variables, with the i subscript indicating ethnicity, and the j subscript indicating the variable;

X_j is a vector of independent variables, including permanent income;

e is the error of the regression.

Note that this specification allows the results to be interpreted in the following way. If a parameter estimate with subscript h is statistically significant, this means that for Hispanics, the parameter estimate is nonzero. If a parameter estimate with subscript w or b (for whites or blacks, respectively) is statistically significant, it means that, for that group, a different relationship exists between the variable in question and the dependent variable than for Hispanics. Summing the parameter estimates gives the estimated effect of a change in the independent variable for the non-Hispanic group.

Because of the Box-Cox transformations, parameter estimates in most of the models do not have any immediately interpretable intuitive meaning. Therefore, for the reader's convenience, important measures that are derived from these parameter estimates (such as the marginal propensities to consume and income elasticities, described subsequently) are presented in tables 4 and 8. They are noted in these tables if the income parameter estimates differ significantly across ethnic origin. Income parameter estimates for Hispanics are all statistically significant at the 95-percent confidence level.

General observations. There are some similarities across ethnic groups. For example, if an expenditure is a necessity good or a luxury good for one group, it is for the other two groups as well. Also, although standardization has substantial effects on at least some of the MPC estimates, it appears to have little effect on elasticities estimated from these MPCs, except for the case of recreation and related expenditures. It also is worth noting that in every case other than unadjusted food at home and recreation and related expenditures, white families have both the lowest MPC and elasticity for all goods and services tested. This is less surprising before standard-

Table 4. Average annualized expenditures, marginal propensities to consume, and income elasticities for selected goods and services by race and Hispanic origin, 1994–95

[Expenditure figures in billions of dollars]

Expenditure category	Unadjusted			Standardized		
	Hispanic	White	Black	Hispanic	White	Black
Total expenditures	$24,911	$32,025	$21,951	$30,329	$30,329	$30,329
Food at home:						
Expenditure level	$3,761	$3,311	$3,104	$3,324	$3,324	$3,324
Marginal propensity to consume	[1].041	.029	.043	[1].031	.031	.033
Elasticity	[1].274	.279	.304	[1].283	.279	.299
Shelter and utilities:						
Expenditure level	$7,216	$7,697	$6,375	$7,510	$7,510	$7,510
Marginal propensity to consume	[1].156	[2].117	[2].176	[1].132	[2].121	[2].144
Elasticity	[1].538	[2].485	[2].606	[1].532	[2].488	[2].581
Apparel and services:						
Expenditure level	$1,246	$1,338	$1,198	$1,315	$1,315	$1,315
Marginal propensity to consume	[1].074	.061	[2].096	[1].064	.063	[2].075
Elasticity	[1]1.480	1.454	[2]1.751	[1]1.470	1.457	[2]1.731
Transportation:						
Expenditure level	$4,632	$5,874	$4,013	$5,566	$5,566	$5,566
Marginal propensity to consume	[1].273	[2].239	[2].300	[1].269	[2].239	[2].301
Elasticity	[1]1.467	[2]1.301	[2]1.640	[1]1.467	[2]1.301	[2]1.640
Recreation and related expenditures:						
Expenditure level	$2,219	$4,003	$1,810	$3,615	$3,615	$3,615
Marginal propensity to consume	[1].147	[2].150	.129	[1].185	[2].145	.171
Elasticity	[1]1.652	[2]1.200	1.566	[1]1.554	[2]1.215	1.436

[1] The Hispanic income parameter estimate used to calculate this item differs from zero at the 99-percent confidence level.

[2] The income parameter estimate used to calculate this item differs from the Hispanic income parameter at the 95-percent confidence level.

ization, when one considers that whites have the highest permanent incomes, on average. Given that white families already have higher incomes, a 1-percent increase in income will not likely induce as large an increase in spending (at least in percent terms) as for the groups with lower incomes. However, it is interesting that even after standardization, whites still have the lowest income elasticities—substantially so in many cases. In line with this reasoning, blacks, who have the lowest permanent income, on average, have the highest elasticities—before and after standardization—for all goods and services except recreation and related expenditures, for which Hispanics have the highest elasticity.

Intra-ethnicity comparisons

As noted earlier, several studies exist that examine spending patterns of Hispanics as a whole. However, Hispanics come from a wide range of countries, each with its own cultural variations. This raises an interesting question: Are Hispanics homogenous, as has been presupposed, or are there significant differences within this group that warrant special study? Hispanic consumers are segmented into the following groups by the Consumer Expenditure Survey: Mexican,[37] Puerto Rican, Cuban, Central or South American, and other Spanish.

Demographics. The Mexican segment is by far the largest subgroup within the Hispanic population, accounting for 62 percent of all Hispanic families. The next largest subgroup consists of families from Central or South America (14 percent), followed by Puerto Rico (12 percent), Cuba (5 percent), and other Spanish origin (8 percent). Demographic characteristics between the subgroups vary almost as much as their proportions in the Hispanic population. For example, average family size ranges from 2.4 persons per Cuban family to 3.7 persons per Mexican family. Also, while Cuban families have fewer children under 18 years than Hispanic families in general (0.5 versus 1.3), they also have more than twice as many persons who are 65 years or older than the average Hispanic family (0.5 versus 0.2). The number of persons over age 65 probably explains both the relatively high age of the reference person for Cuban families (55 years) and the fewer number of children. By comparison, the average age of the reference person ranges only from 39 to 43 years for all other Hispanic groups. For the total Hispanic population (including Cubans), the average age of the reference person is about 41 years. (See table 5.)

Differences also exist in the educational attainment level of the reference person. Those from Mexican families are the least educated, on average, while those from other Spanish families are the most educated. More than 3 of 4 Mexican families have a reference person who is not educated beyond the high school level. This compares with only about 2 of 3 Cuban or Puerto Rican families, and about half of all Central or South American families. Similarly, Mexican families are the least likely to have a reference person who has obtained a college degree—only about 1 in 18 have reached this level of education. For other Hispanic families, the range is between 1 in 9 (Puerto Ricans) and 1 in 4 (other Spanish) reference persons.

Housing tenure also differs among the various Hispanic groups. More than half of Mexicans and Cubans are renters, compared with about two-thirds of Central or South Americans, and nearly the same amount for other Spanish families. Puerto Rican families are the most likely to be renters, with nearly three-fourths of these families renting their home. And even among homeowners, the percentage of those who own their home outright (without a mortgage) varies considerably by group. Only about 10 percent of Central or South American homeowners own their homes outright, compared with 15 percent of Puerto Rican homeowners and 30 to 40 percent of all other Hispanic homeowners. Cuban homeowners are among the most likely (30 percent) to own their homes outright, which is not surprising considering the higher average age of the reference person in these families. It is less clear, on the other hand, why Mexican families—with the lowest permanent income and lower-than-average age of reference person—should have such a high percentage (39 percent) of outright owners.

Despite these differences, the five Hispanic subgroups have surprisingly similar income levels. In fact, when "permanent" incomes (using total expenditures as a proxy) for each group are compared with those for Mexican families (used as a reference group because they are the largest portion of the Hispanic population), only families from Central or South America show a statistically significant difference in income. The largest gap in permanent income is found between Central or South Americans ($28,367) and Puerto Ricans ($23,194), a difference of 22 percent. For perspective, consider that white families ($32,025) have more than 46 percent more in permanent income than black families ($21,951), and black families have less permanent income than Puerto Rican families ($23,194), the Hispanic subgroup with the lowest permanent income.[38] (See tables 3, 5 and 7.)

Family size is another important factor to consider when examining incomes. For example, Puerto Rican families and Central or South American families are of similar size (3.0 and 3.2 persons per family, respectively), yet the latter have much more permanent income to spread among family members. When comparing Puerto Rican and Mexican families the latter have only slightly more permanent income ($970), but also have nearly 1 more person, on average (3.7 members), in their families.[39] Mexican families also have the greatest average number of earners per family (1.6), suggesting that the average earner in a Mexican family earns less than the average earner in other Hispanic families. This may reflect the lower level of educational attainment among Mexican families or other factors that differ across the Hispanic subgroups. (See table 5.)

Table 5. General characteristics of Hispanics by geographic origin of reference person, 1994–95.

Characteristic	Total Hispanics	Mexican	Puerto Rican	Cuban	Central or South American	Other Spanish
Sample size	2,940	1,727	331	174	434	274
Consumer units represented:						
Number	7,791,811	4,835,721	897,347	357,584	1,049,660	651,499
Percent	100.0	62.1	11.5	4.6	13.5	8.4
Income before taxes (complete income reporters only)	$27,112	$26,063	$28,332	$28,370	$28,781	$29,703
Age of reference person	41.0	40.1	40.5	54.7	39.2	43.3
Average number in consumer unit:						
Persons under 18 years	1.3	1.5	1.1	.5	1.2	.9
Persons 65 years and older	.2	.2	.2	.5	.1	.2
Earners	1.5	1.6	1.1	1.2	1.5	1.4
Vehicles	1.6	1.8	.9	1.3	1.3	1.5
Automobiles	1.1	1.1	.8	1.1	1.1	1.1
Other vehicles	.5	.7	.1	.2	.2	.4
Housing characteristics:						
Rooms (excluding bedrooms)	4.8	4.8	4.8	4.5	4.7	5.0
Bedrooms	2.4	2.4	2.3	2.1	2.3	2.4
Bathrooms	1.3	1.3	1.2	1.5	1.4	1.3
Half-baths	.1	.1	.1	.1	.2	.2
Percent distribution:						
Housing tenure:						
Homeowner	42.1	48.1	26.2	45.5	30.5	36.5
With mortgage	28.0	29.4	22.4	31.9	27.3	24.7
Without mortgage	14.1	18.7	3.8	13.6	3.2	11.8
Renter	57.9	51.9	73.8	54.5	69.5	63.5
Race of reference person:						
White	95.6	97.9	93.2	94.7	91.5	89.4
Black	3.3	.9	4.9	5.3	7.4	10.4
Other	1.1	1.2	1.9	–	1.1	–
Education of reference person:						
Some high school or less	45.0	52.0	40.8	42.0	34.0	18.6
High school graduate	26.1	25.9	28.7	20.7	23.8	30.4
Some college	18.6	16.4	19.5	18.2	22.6	27.7
College graduate	10.3	5.7	10.9	19.0	19.6	23.3
Family composition:						
Single person	15.8	51.9	19.7	36.2	17.7	25.7
Husband and wife only	10.9	11.6	7.2	17.2	8.1	11.7
Husband and wife, own children only	34.1	38.6	27.0	26.1	30.5	20.9
Single parent	11.9	10.4	22.0	2.6	15.4	9.1
Other families	27.3	27.7	24.1	17.9	28.3	32.6
Region:						
Northeast	16.7	.8	67.7	16.0	37.8	30.1
Midwest	7.1	8.3	4.8	.4	6.5	6.0
South	35.6	35.6	24.7	75.4	30.1	37.5
West	40.7	55.3	2.8	8.2	25.7	26.3
Degree urbanization:						
Urban	98.3	98.2	98.2	100.0	99.2	96.8
Rural	1.7	1.8	1.8	–	.8	3.2
Working status of reference person:						
Wage or salary earner	72.1	76.3	57.8	63.6	71.1	66.7
Self-employed	3.8	3.8	2.1	2.0	6.5	3.0
Retired	8.6	9.0	6.6	22.6	3.4	9.1
Other not working	15.5	10.9	33.6	11.8	19.0	21.2

NOTE: Dash indicates no data were reported.

Aggregate shares. Table 6 shows the share of the Hispanic population and the share of total Hispanic spending accounted for by each subgroup. In general, the subgroups spend consistently with their share of the population. For example, Cubans account for 5 percent of Hispanic families and 5 percent of Hispanic expenditures. Spending for public transportation, however—one of only two expenditure categories (the other being food at home) for which Hispanics in general account for a larger share of spending than their population would suggest—varies considerably by subgroup. For example, Mexican families account for more than three-fifths of Hispanic families, but only one-fourth of Hispanic expenditures for public transportation. Other Spanish families, which make up about 8 percent of Hispanic families, account for roughly the same proportion of Hispanic expenditures on public transportation. Finally, families from Central or South America account for nearly 31 percent of Hispanic spending on public transportation, more than twice their share of the Hispanic population (less than 14 percent).

Recreation and related expenditures showed the most divergence in its subcomponents. Mexican families, for example, spend considerably less than their population share on other lodging (such as hotels and vacation homes) and transportation on trips, while Puerto Rican, Central or South American, and other Spanish families spend considerably more for these expenditures. For entertainment expenditures, Mexican families are slightly underrepresented, accounting for 59 percent of Hispanic entertainment expenditures, although they make up 62 percent of Hispanic consumer units. Other Spanish families, by contrast, are overrepresented in this category, accounting for 11 percent of entertainment expenditures, but only 8 percent of Hispanic consumer units. Interestingly, expenditures for food away from home closely match population shares for each of the Hispanic subgroups.

Finally, there also are differences in expenditures for health

Table 6. Aggregate expenditure shares for Hispanics by geographic origin, 1994–95

Expenditure category	Expenditures (in billions of dollars)	Expenditure share (in percent)				
	Total Hispanics	Mexican	Puerto Rican	Cuban	Central or South American	Other Spanish
Consumer units:						
Number	7,791,811	4,835,721	897,347	357,584	1,049,660	651,499
Percent of total Hispanics	100.0	62.1	11.5	4.6	13.5	8.4
Total expenditures	$194.1	$60.2	$10.7	4.6	15.3	9.1
Food at home	29.3	63.8	12.4	4.3	13.9	8.5
Housing (less trips)	64.9	57.9	11.8	4.4	17.1	8.8
Shelter and utilities	56.2	57.2	12.0	4.2	17.7	8.9
Other housing	8.6	62.1	10.8	5.4	13.1	8.5
Apparel and services	9.7	64.3	10.4	3.1	13.7	8.5
Transportation (less trips)	36.1	65.3	7.3	4.2	14.0	9.1
Private	35.2	66.3	7.0	4.2	13.6	8.9
Public (less trips)	.9	27.2	20.3	5.8	30.5	16.3
Health care	7.5	60.9	10.0	6.1	14.2	8.8
Health insurance	3.7	61.3	12.2	7.8	9.0	9.6
Medical services	3.0	60.9	6.4	3.6	21.3	7.6
Prescription drugs	.6	59.7	11.8	7.8	10.6	9.6
Medical supplies	.2	55.4	15.2	5.1	15.9	8.4
Recreation and related expenditures	17.3	57.3	11.3	5.4	15.9	10.2
Food away from home	7.0	60.3	9.5	5.4	16.5	8.4
Entertainment	7.3	58.9	11.4	5.2	13.7	10.8
Reading	.6	50.5	13.7	5.5	18.5	12.5
Transportation (on trips)	1.5	42.8	15.6	6.1	21.0	14.3
Other lodging	1.0	49.4	14.9	6.0	18.3	11.3
Other	29.3	58.6	10.8	5.6	15.0	9.9
Alcohol	1.4	65.8	6.8	5.6	14.6	7.3
Tobacco and smoking supplies	1.1	52.2	23.6	4.0	9.6	10.6
Education	2.2	39.6	17.7	7.1	26.6	8.8
Personal care	1.6	55.8	10.6	7.5	16.9	9.4
Cash contributions	3.3	58.0	8.4	10.3	13.4	9.8
Personal insurance	15.7	59.3	10.4	4.5	14.6	11.2
Miscellaneous	4.0	66.8	8.6	5.4	12.4	6.8

insurance among the Hispanic subgroups. An earlier study by the author and Elizabeth M. Dietz found that Hispanics in general are less likely to be insured than blacks or whites—a finding supported by table 2, which shows that Hispanics account for almost 8 percent of the population, but less than 5 percent of health insurance expenditures. But even within the Hispanic community, health insurance expenditures appear to vary. For example, Cubans are the most overrepresented group in health insurance expenditures. Making up 5 percent of the Hispanic population, they account for 8 percent of health insurance expenditures (the opposite of Hispanics in the population as a whole). Other Spanish families account for more than 8 percent of the Hispanic population and almost 10 percent of Hispanic health insurance expenditures. Mexican and Puerto Rican families have population shares within 1 percentage point of their expenditure shares, while Central and South American families are underrepresented—accounting for 14 percent of the Hispanic population but only 9 percent of Hispanic health insurance expenditures.

Expenditure shares. Although levels of expenditures are shown for convenience in table 6, it is again more useful to compare shares, especially when total expenditures are so similar, at least in statistical terms. Differences in shares make clear how the overall budget is allocated differently, and if income differences are not statistically significant, the shares can be particularly revealing because shares are more likely to differ for reasons of tastes or other factors.

As table 7 shows, when comparing across Hispanic subgroups, Engel's proposition appears to hold more readily than it did in earlier comparisons. For example, Central or South American and other Spanish families have the highest permanent incomes and the smallest shares (14 percent) allocated to food at home Puerto Rican and Mexican families have the lowest incomes, and the largest shares for food at home (18 and 16 percent, respectively). Although Cuban families have lower incomes than other Spanish families, they each allocate the same share (14 percent) to food at home. This is probably because Cubans, on average, also have fewer family members (2.4) than other Spanish families (2.8). Similarly, housing expenditure shares are about one-third of total expenditures for all families, ranging from less than 32 percent (among Cubans) to more than 37 percent (among Central or South Americans). Expenditure shares for apparel and services are about 5 percent of total expenditures for all Hispanic families, except those from Cuba, whose share is 3 percent—again probably due to smaller families and perhaps to older reference persons.[40]

Regression analysis for Hispanic subgroups

Background. Although there is more homogeneity among the Hispanic subgroups than among the ethnic groups compared earlier, there still are substantial differences in demographics that may account for differences in tastes and preferences. To be certain that it is truly geographic origin and not age, family size, or other factors that somehow influence expenditures, regression analysis again is undertaken.

The regressions in this section are similar to those used earlier—that is, total quarterly expenditures are used as a proxy for permanent income, the dependent variables and the income variables are subjected to Box-Cox transformations,[41] and so forth. The specification of the model, however, is slightly different, as follows:

$$Y^* = \alpha_m + \sum \alpha_i D_i + \beta_m I + \sum \beta_i D_i I + \beta_j X_j + e$$

where

Y^* is the (Box-Cox transformation of the) dependent variable;

α_m is the intercept of the regression equation;

α_i are parameter estimates;

D_i are dummy variables describing geographic origin for non-Mexican Hispanics;

$\beta_m \beta_i$ are parameter estimates for the income variable;

I is permanent income (transformed);

β_j is a vector of parameter estimates for various independent variables;

X_j is a vector of independent variables; and

e is the error of the regression.

The main difference here from the earlier specification is that only the intercept and income variables are interacted with ethnic background, whereas all variables (age, family size, and so on) were interacted with ethnicity earlier. The difference is primarily due to degrees of freedom. In the earlier part of the article, there were sufficient observations in each ethnicity to run separate regressions for each group had that been the goal. This specification, however, allows relationships for all variables to differ by ethnicity and permits statistical tests to be taken to ascertain whether or not observed differences are statistically significant. (For example, the results can be used to ascertain whether there are different spending patterns by ethnic background in the Northeast.)

But when dividing Hispanics into subcomponents, some groups (particularly Cubans) have sufficient sample for the regressions to be computed in a technical sense, but the sample is not large enough to draw inferences about differences by the multiple independent variables tested. In other words, given a large sample, statistically significant differences might be found between Cubans living in the Midwest compared with Mexicans living in the Midwest. But because there are few observations for Cubans living in the Midwest, it is unlikely that a statistically significant difference will be found for these groups, even if the test is conducted appropri-

Table 7. Average annual expenditures and expenditure shares for Hispanics by geographic origin, 1994–95

Expenditure category	Expenditures (in billions of dollars)						Expenditure shares (in percent)					
	Total Hispanics	Mexican	Puerto Rican	Cuban	Central or South American	Other Spanish	Total Hispanics	Mexican	Puerto Rican	Cuban	Central or South American	Other Spanish
Number of consumer units	7,791,811	4,835,721	897,347	357,584	1,049,660	651,499	(1)	(1)	(1)	(1)	(1)	(1)
Total expenditures (billions of dollars)	$24,911	$24,164	$23,194	$25,127	$28,367	$27,127	100.0	100.7	100.1	100.1	100.1	100.0
Food at home	3,761	3,868	4,052	3,535	3,884	3,839	15.1	16.0	17.5	14.1	13.7	14.2
Housing (less trips)	8,325	7,764	8,533	7,953	10,584	8,770	33.4	32.1	36.8	31.7	37.3	32.3
Shelter and utilities	7,216	6,653	7,489	6,651	9,505	7,642	29.0	27.5	32.3	26.5	33.5	28.2
Other housing	1,110	1,111	1,045	1,301	1,080	1,128	4.5	4.6	4.5	5.2	3.8	4.2
Apparel and services	1,246	1,291	1,125	848	1,264	1,263	5.0	5.3	4.9	3.4	4.5	4.7
Transportation (less trips)	4,632	4,875	2,950	4,264	4,813	5,058	18.6	20.2	12.7	17.0	17.0	18.6
Private	4,518	4,825	2,749	4,122	4,555	4,836	18.1	20.0	11.9	16.4	16.1	17.8
Public (less trips)	114	50	201	143	258	222	.5	.2	.9	.6	.9	.8
Health care	966	948	838	1,287	1,019	1,014	3.9	3.9	3.6	5.1	3.6	3.7
Health insurance	480	474	509	818	322	552	1.9	2.0	2.2	3.3	1.1	2.0
Medical services	380	373	211	302	602	344	1.5	1.5	.9	1.2	2.1	1.3
Prescription drugs	79	76	81	135	62							
Medical supplies	28	25	37	31	33	28	.1	.1	.2	.1	.1	.1
Recreation and related expenditures	2,219	2,047	2,170	2,617	2,613	2,712	8.9	8.5	9.4	10.4	9.2	10.0
Food away from home	894	869	740	1,055	1,092	893	3.6	3.6	3.2	4.2	3.8	3.3
Entertainment	937	889	924	1,058	955	1,215	3.8	3.7	4.0	4.2	3.4	4.5
Reading	75	61	89	90	103	112	.3	.3	.4	.4	.4	.4
Transportation (on trips)	190	131	258	254	296	325	.8	.5	1.1	1.0	1.0	1.2
Other lodging	123	98	159	161	167	166	.5	.4	.7	.6	.6	.6
Other	3,762	3,553	3,528	4,624	4,190	4,471	15.1	14.7	15.2	18.4	14.8	16.5
Alcohol	182	193	108	223	197	159	.7	.8	.5	.9	.7	.6
Tobacco and smoking supplies	145	122	297	126	103	183	.6	.5	1.3	.5	.4	.7
Education	276	176	423	430	545	292	1.1	.7	1.8	1.7	1.9	1.1
Personal care	207	186	191	339	260	233	.8	.8	.8	1.3	.9	.9
Cash contributions	426	398	311	955	425	499	1.7	1.6	1.3	3.8	1.5	1.8
Personal insurance	2,013	1,925	1,815	1,953	2,188	2,686	8.1	8.0	7.8	7.8	7.7	9.9
Miscellaneous	513	552	383	599	472	419	2.1	2.3	1.7	2.4	1.7	1.5

[1] Not applicable.

ately. Therefore, the two most important variables are chosen for examination. The importance of the income effect was discussed earlier. The intercept is allowed to vary by group to capture any intracharacteristic variation that may be present among variables other than income.

Similar to the regressions in the first part of the article, there is only one control group. Because Mexicans are the largest segment of the Hispanic population, it is with reference to them that statistically significant differences are examined. While it is possible to test each group against each of the others (for example, are there statistically significant differences between Cubans and Puerto Ricans?), such comparisons would be cumbersome with five groups. Because the main point of this section is to test whether Hispanics are homogeneous or not, if at least one group shows a statistically significant difference from Mexicans, this is sufficient to prove

the point that Hispanics are not homogeneous, at least with respect to that expenditure category.

Results. Table 8 shows the results of the regressions in standardized form. The standardized figures use average expenditures and permanent income from all Hispanic families. As expected, the data show that there are differences across groups for some expenditures when the data are evaluated at the mean of each expenditure and the mean permanent income for each of those groups. More surprising is that standardization does little to change the MPC or elasticity for most of the expenditures under study. As before, standardization allows one to test whether the differences in the groups are due to underlying tastes or differences in levels of income and expenditure. If the parameter estimate for the permanent income variable differs significantly from the parameter estimate for Mexican families, the standardized results for the group in question are interpreted to mean that there are differences between Hispanic subgroups. For convenience, only standardized results are discussed below.

Mexican and Cuban families have the most similar expenditure patterns—the differences in their income parameter estimates are not statistically significant for any of the goods and services tested, at least not at the 95-percent confidence level. (The parameter estimates for transportation and recreation and related expenditures are significant only at the 90-percent level.) Similarly, the income parameter estimate for other Spanish families is significant only for transportation. Puerto Rican families have significantly different income parameter estimates for food at home, shelter and utilities, and transportation. (The estimate in the apparel model is significant at the 90-percent confidence level.) Central or South American families differ significantly only for food at home and shelter and utilities.

Food at home shows substantial variation in both MPC and elasticity. The MPC's range from 0.034 (Mexican) to 0.061 (Central or South American), while the elasticities range from 0.161 (Mexican) to 0.407 (Central or South American). However, regardless of geographic origin, food at home has the lowest income elasticity of any of the goods and services tested. Similarly, the shelter and utilities category has a relatively low elasticity regardless of geographic origin.

Transportation expenditures differ significantly, at least for some of the groups. The lowest elasticity (0.902) is for other Spanish families; the highest (2.081) is for Puerto Rican families. Both of these elasticities differ from those of Mexican families (1.444) at statistically significant levels. Transportation is the only item tested that spans the range of necessity (for other Spanish) to luxury (for all others) in a statistically significant way; the range in elasticities is wider

Table 8. Average annualized expenditures, marginal propensities to consume, and income elasticities for selected goods and services, standardized using averages for all Hispanics

Expenditure category	Mexican	Puerto Rican	Cuban	Central or South American	Other Spanish
Total expenditures	$24,911	$24,911	$24,911	$24,911	$24,911
Food at home:					
Expenditure level	$3,761	$3,761	$3,761	$3,761	$3,761
Marginal propensity to consume	[1].034	[2].055	.045	[2].061	.038
Elasticity	[1].161	[2].362	.300	[2].407	.252
Shelter and utilities:					
Expenditure level	$7,216	$7,216	$7,216	$7,216	$7,216
Marginal propensity to consume	[1].145	[2].189	.120	[2].184	.154
Elasticity	[1].501	[2].654	.416	[2].634	.530
Apparel and services:[2]					
Expenditure level	$1,246	$1,246	$1,246	$1,246	$1,246
Marginal propensity to consume	[1].073	.093	.049	.069	.086
Elasticity	[1]1.467	1.861	.975	1.372	1.726
Transportation:					
Expenditure level	$4,632	$4,632	$4,632	$4,632	$4,632
Marginal propensity to consume	[1].269	[2].387	.340	.254	[2].168
Elasticity	[1]1.444	[2]2.081	1.828	1.365	[2].902
Recreation and related expenditures:					
Expenditure level	$2,219	$2,219	$2,219	$2,219	$2,219
Marginal propensity to consume	[1].144	.159	.183	.142	.150
Elasticity	[1]1.618	1.789	2.049	1.597	1.686

[1] The Hispanic income parameter estimate used to calculate this item differs from 0 at the 99-percent confidence level.

[2] The income parameter estimate used to calculate this item differs from the Hispanic income parameter at the 95-percent confidence level.

than for any other group. Also, the elasticity of 2.081 for Puerto Rican families is greater than any other elasticity for any other good or service tested, including recreation and related services.

Finally, for apparel and services, no group has an income parameter estimate that differs in a statistically significant way from that which is found for Mexican families (although Puerto Rican and other Spanish families appear to have larger elasticities than Mexican families, and Central or South American and Cuban families appear to have lower elasticities). Also, elasticities for Cuban families are estimated to be less than 1, indicating that apparel and services are necessities, not luxuries, for these families. (See table 8.)

Summary and conclusions

Most economists probably would agree that three demographic characteristics, more than any others, explain expenditure patterns: income, family size, and age. Yet, even if these factors are identical, spending patterns will differ across families because each family has different tastes and preferences. Identifying variables that influence tastes and preferences is the first step to understanding the variation in spending patterns by different families. Clearly, the results of this study show that ethnicity is a factor that influences tastes and preferences.

The Hispanic ethnic group is becoming increasingly important in both its proportion of the population and its share of total consumer spending. In the first part of this article, Hispanic families are compared with white and black families. The relationships of expenditures to nonethnic demographic characteristics are examined for each of the three groups. At first, Hispanics appear to have more in common with blacks than with whites—for example, there were no statistically significant differences between the two groups in the share of total expenditures allocated to the major expenditure categories (food at home, housing, apparel, transportation, health care, recreation and related expenditures, or other expenditures); also, Hispanics and whites have statistically significant differences in their shares for all categories except transportation. However, this does not take into account that blacks and Hispanics have lower incomes, on average, than whites. It also does not take into account other demographic differences—specifically, that Hispanics have the largest families and the youngest reference persons, on average.

To control for these differences in basic demographic composition of the groups, regression analysis was performed. Marginal propensities to consume and income elasticities for different expenditure categories by ethnic background are estimated from these analyses. Each of these factors is estimated first to represent the average family in each group, and second to represent how the average family in each group would react if income and expenditures for all items were held constant. Even after such standardization, Hispanics are sometimes more similar to whites, sometimes more similar to blacks, and sometimes in the middle of the two groups. The evidence seems to suggest, therefore, that ethnic differences do affect tastes and, hence, should be accounted for in analysis.

Given that ethnicity is related to tastes, is it still reasonable to assume that Hispanics as a group are homogeneous, even though they come from a variety of geographic backgrounds? In order to test this hypothesis, Hispanics were divided into five groups, based on area of origin: Mexican, Puerto Rican, Cuban, Central or South American, and other Spanish. Analyses similar to those described earlier were then performed, this time with Mexican families serving as the reference group. Again, even when results are standardized by income and expenditure levels, many differences exist in expenditure patterns across the Hispanic subgroups.[42] □

Footnotes

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[1] *Statistical Absract of the United States: 1996* (Bureau of the Census, 1996), table 19.

[2] For examples, see Mark Lino, "Income and spending patterns of single-mother families," *Monthly Labor Review*, May 1994, pp. 29–37; Geoffrey D. Paulin and Wolf D. Weber, "The effects of health insurance on consumer spending," *Monthly Labor Review*, March 1995, pp. 34–54; Geoffrey D. Paulin and Elizabeth M. Dietz, "Health insurance coverage for families with children," *Monthly Labor Review*, August 1995, pp. 13–23; and Geoffrey D. Paulin, "Health Insurance Coverage for Low-Income Families: Findings from the Consumer Expenditure Survey," *Advancing the Consumer Interest*, fall 1996, pp. 20–32. The latter article includes results of regressions, the equations for which include ethnic dummy variables. However, the coefficients for the ethnic variables are not shown.

[3] Scott Koslow, Prem N. Shamdasani, and Ellen E. Touchstone, "Exploring Language Effects in Ethnic Advertising: A Sociolinguistic Perspective," *Journal of Consumer Research*, March 1994, pp. 575–85.

[4] Lisa Peñaloza, "Border Crossings: A Critical Ethnographic Exploration of the Consumer Acculturation of Mexican Immigrants," *Journal of Consumer Research*, June 1994, pp. 32–54; and Cynthia Webster, "Effects of Hispanic Ethnic Identification on Marital Roles in the Purchase Decision Process," *Journal of Consumer Research*, September 1994, pp. 319–31.

[5] Jessie X. Fan and Virginia Solis Zuiker, "Budget Allocation Patterns of Hispanic versus Non-Hispanic White Households," *Consumer Interests An-*

nual, 1994, pp. 89–96; a more extensive version of the article has been accepted for publication in *Journal of Family and Economic Issues*, forthcoming. Also see Janet Wagner and Horacio Soberon-Ferrer, "The Effect of Ethnicity on Selected Household Expenditures," *The Social Science Journal*, February 1990, pp. 181–98.

[6] Peter Cattan, "The diversity of Hispanics in the U.S. work force." *Monthly Labor Review*, August 1993, pp. 3–15.

[7] José F. Medina, Joel Saegert, and Alicia Gresham, "Comparison of Mexican-American and Anglo-American Attitudes Toward Money," *Journal of Consumer Affairs*, summer 1996, pp. 124–45.

[8] See Fan and Zuiker, "Budget Allocation Patterns"; and Wagner and Soberon-Ferrer, "Effect of Ethnicity."

[9] See Peñaloza, "Border Crossings." The author conducts an interesting study to answer this question, relying on personal observations of 23 Mexican immigrants from 14 households. Despite her name and heritage, however, Peñaloza's "Anglo" appearance and inability to speak Spanish well made it difficult for her to ensure the trust and participation of her respondents. She had to "prove [her] intentions were earnest, which [she] did by sustained contact, focused interest, and by doing things for the informants, such as providing transportation and translations." As she gained trust, she was able to observe respondents during their daily routines, an experience she found both "challenging and rewarding."

[10] See Medina and others, "Attitudes Toward Money," pp. 137–38.

[11] See Cattan, "Diversity of Hispanics."

[12] See Fan and Zuiker, "Budget Allocation Patterns," and Wagner and Soberon-Ferrer, "Effect of Ethnicity."

[13] See Webster, "Effects of Hispanic Ethnic Identification," footnote 1.

[14] See Fan and Zuiker, "Budget Allocation Patterns," p. 89.

[15] See Wagner and Soberon-Ferrer, "Effect of Ethnicity."

[16] See Webster, "Effects of Hispanic Ethnic Identification"; Peñaloza, "Border Crossings"; and Medina and others, "Attitudes Toward Money."

[17] Koslow and others, "Exploring Language Effects," p. 580.

[18] The Interview survey data break down ethnicity for those of Mexican origin into Mexican, Mexican-American, and Chicano. However, the Cattan model (grouping these together as persons of Mexican origin) is used here instead of that of Koslow and others (making distinctions based on degree of "ethnic identification" with the United States). This choice is made both for practical considerations (the approach of Koslow and others adds to the number of potential comparisons, thus yielding smaller sample sizes and making the comparisons more cumbersome) and due to theoretical assumptions (it is assumed that spending patterns are not vastly different for these three groups). Furthermore, there are no other measures of "ethnic identity" for the other Hispanic groups—only for geographic origin. Hence, the term "Mexican" is used here to indicate geographic origin.

[19] In "Effect of Ethnicity," Wagner and Soberon-Ferrer examine Interview survey data from 1980–81; in "Budget Allocation Patterns," Fan and Zuiker examine Interview survey data from 1980 to 1990.

[20] A report describing the 1992–93 survey results indicates that the "Interview survey collects detailed data on an estimated 60 to 70 percent of total household expenditures. In addition, global estimates—that is, expense patterns for a 3-month period—are obtained for food and other selected items. These global estimates account for an additional 20 to 25 percent of total expenditures." See *Consumer Expenditure Survey 1992–93*, Bulletin 2462 (Bureau of Labor Statistics, September 1995), p. 231.

[21] The reference person is the first person the respondent names when asked to "Start with the name of the person or one of the persons who owns or rents this home." It is with respect to this person that the relationship of other members of the consumer unit is determined.

[22] As used here, the Hispanic group includes the following subgroups: Mexican American, Chicano, Mexican, Puerto Rican, Cuban, Central or South American, and other Spanish.

[23] The following categories are classified here as non-Hispanic: German, Italian, Irish, French, Polish, Russian, English, Scottish, Afro-American, Dutch, Swedish, Hungarian, other, and "do not know."

[24] Other races include American Indian, Aleut, Eskimo, Asian or Pacific Islander, and other.

[25] Because the focus of this study is expenditure patterns by *ethnicity* (specifically Hispanics), it may seem curious that the data are defined, in part, based on *race* as well as ethnicity. This reflects the standards used by U.S. statistical agencies as specified by the Office of Management and Budget. See "Revisions to the Standards for the Classification of Federal Data on Race and Ethnicity," *Federal Register*, Oct. 30, 1997, pp. 58781–90. Also, because Hispanics are overwhelmingly white by race (see table 1), no attempt is made to control for racial differences among Hispanics in this study.

[26] Results include complete reporters only. In general, complete income reporters are those families that provide values for at least one major source of income, such as wages and salaries, self-employment income, or Social Security income. However, even complete income reporters may not have provided a full accounting of all income from all sources.

[27] The Consumer Expenditure Survey defines children as the offspring—by birth, adoption, or other legal arrangement—of the reference person and spouse, if present. However, this means that grandparents raising grandchildren and other similar consumer units are not technically defined as having children, even though these persons are under 18. In this study, children are defined as persons under the age of 18, although it is possible that persons 18 years and older are still living with parents or that persons under 18 could, in unusual circumstances (college students who are under 18, for example), be the reference person. It is assumed that, although parents may still be providing support for some, persons under the age of 18 have different needs than those 18 years and older, so family expenditure patterns will differ by age of persons present more so than by the relationship of these persons to the reference person.

[28] Conservative estimates from the Bureau of the Census suggest that Hispanics accounted for more than one-fourth of all immigrants in 1994, with the following breakdown by geographic origin: Mexico (111,400), Cuba (14,700), Central America (39,900), South America (excluding Brazil and Guyana, 35,200), and Spain (1,400). Note that countries like the Dominican Republic, which accounted for 51,200 Hispanic immigrants in 1994, are not included in this estimate because it is assumed that immigrants from such areas would define themselves as being of "other Spanish" origin. Also, Brazil and Guyana are omitted because only persons from *Spanish*-speaking countries in Central or South America are considered Hispanic. And because Puerto Rico is technically part of the United States, persons moving from Puerto Rico to the U.S. mainland are not considered immigrants. Also, in 1994, Hispanic immigrants accounted for about 0.8 percent of the resident Hispanic population; non-Hispanic immigrants accounted for 0.2 percent of the resident non-Hispanic population. (See *Statistical Abstract*, tables 8 and 12.)

[29] The annualized aggregate expenditures are obtained by finding average expenditures per family in each ethnic group for the 3 months for which they report their expenditures. These 3-month average figures are then multiplied by 4 to "annualize" them, and this figure is multiplied by the total number of consumer units in each group. For example, table 1 shows that there were 7,791,811 Hispanic consumer units in the population during the study period. Table 3 shows that the average annualized expenditure for food at home is $3,761. Multiplying 7,791,811 by $3,761 yields approximately $29.3 billion, as shown in table 2.

[30] Graham Bannock, Ron Baxter, and R. Rees, *A Dictionary of Economics* (Middlesex, Harmondsworth, Penguin Books Ltd., 1972), p. 140.

[31] Milton Friedman, *A Theory of the Consumption Function* (Princeton, NJ, Princeton University Press for National Bureau of Economic Research, 1957), p. 221.

[32] Recent studies using total expenditures as a proxy for permanent income include Julie Nelson, "Individual Consumption Within the Household: A study of Expenditure on Clothing," *Journal of Consumer Affairs,* summer 1989, pp. 21–43; E. Raphael Branch, "Short Run Income Elasticity of Demand for Residential Electricity Using Consumer Expenditure Survey Data," *The Energy Journal,* 1993, pp. 111–21; and Geoffrey Paulin, "A Comparison of Consumer Expenditures by Housing Tenure," *Journal of Consumer Affairs,* summer 1995. A version that includes an analysis of condominium owners is available from the Bureau of Labor Statistics, Division of Consumer Expenditure Surveys (Working Paper 249, December 1993).

[33] In this way, the "other" category is omitted. Although it accounts for more than 5 percent of the budget, it is not clear what kinds of intracategory substitutions would be made with respect to changes in income or other characteristics, so the regression of other expenditures on characteristics leads to results that are at best unclear and at worst meaningless.

[34] There are slightly fewer degrees of freedom for the housing regressions because variables related to size of dwelling are occasionally missing in the Consumer Expenditure Survey data. Because there are few missing values and the pattern is presumed to be random, however, the analysis should not be detrimentally affected.

[35] Suppose, for example, that one family usually earns $20,000 per year, and another one usually earns $15,000 per year, but for some reason, the latter family unexpectedly received an additional $5,000 in income during the past year. Even though both families earned $20,000 in current income, they probably would have different spending patterns due to different permanent incomes.

[36] For a detailed discussion of complete and incomplete reporters and plans to impute missing incomes, see Geoffrey D. Paulin and David L. Ferraro "Imputing income in the Consumer Expenditure Survey," *Monthly Labor Review*, December 1994, pp. 23–31.

[37] The Mexican subgroup includes reference persons describing their ethnicity as Mexican American, Chicano, or Mexican.

[38] See table 8 for total expenditures (permanent income) for each of the Hispanic subgroups.

[39] Because Mexican families have, on average, 0.4 more children than other Hispanic families, while also having the same number of persons over 65, it would appear equally likely that the extra person is either a child or another adult aged 18 to 64.

[40] According to the Interview survey results for the total population in 1994, families whose reference person was 65 years or older were less likely to buy apparel than those who reference person was under the age of 65. Only 73 percent of the former group reported purchases, compared with 85 percent of all consumer units (regardless of age). Similarly, only 72 percent of families whose reference person was retired reported expenditures for apparel in 1994. (Retired persons presumably make fewer purchases of business attire items, for example.) Thus, the fact that Cuban families are more likely to have reference persons who are 65 years and older may help explain why they report lower apparel expenditures, on average.

[41] The values of λ for each expenditure in this section are unchanged from their values in the earlier portion of this article.

[42] Reprints of this article with additional regression results are available from the author at the Bureau of Labor Statistics, Division of Consumer Expenditure Survey, Room 3985, Washington, DC 20212; telephone: (202) 606-6900; or from the *Monthly Labor Review* at the address listed on cover two.

Appendix: Notes on methodology

Box-Cox transformations. The two most important variables (aside from ethnicity) considered in this article are expenditures and income. However, neither of these is often found to have a normal distribution, a problem that can cause biased regression results.[1] One solution is to transform these data so that they are approximately normally distributed. One method that has been used with expenditure data is the Box-Cox transformation.[2] Perhaps the most frequently cited version is

$$Y^* = (Y^{\lambda} - 1)/\lambda$$

where

Y^* is the transformed version of the variable

Y is expenditures for a specific good or service (food at home or apparel, for example)

λ is a parameter.

This version of the equation is most useful in demonstrating two special cases for the value of λ. That is, if λ is equal to 1, then no transformation of the independent variable is necessary.[3] If λ approaches zero, then Y^* is approximately equal to the natural logarithm of Y.

Although this specification is useful for deriving the value of Y^* when λ approaches zero, it does not yield an intuitive interpretation when λ takes on any other value. However, Box and Cox point out that their equation can be simplified to

$$Y^* = Y^{\lambda}$$

This leads to a simple interpretation of both λ and the equation as a whole. For example, if λ is found to be ½, then the transformed variable is simply the square root of Y. In the regression, then, each value of the dependent value is replaced by its square root, and the regression is performed in the usual way. (Note that at least for the special case where λ equals 1, it is even easier to see that no transformation is necessary; Y^* equals Y in this case.)

The obvious question raised is how one calculates the value of λ. Conventionally, this is done by trial and error. Several values for λ are used, and whichever one yields the model with the lowest mean square error is the selected value. However, this method is extremely time consuming, and nearly impossible when one considers that there are two variables (expenditures and income) that are being transformed. In this study, λ is estimated through a maximum likelihood procedure described by Stuart Scott and Daniel J. Rope, who specifically study transformations of Consumer Expenditure Survey data.[4] The results of this procedure are shown below:

Expenditure	*Optimal value for* λ
Food at home	0.250
Shelter and utilities	.250
Apparel and services	.125
Transportation (less trips)	.000
Recreation and related expenditures	.125
Health care	.125

Marginal propensity to consume. One of the most important results that can be derived from the regressions presented is the marginal propensity to consume (MPC). This term is defined as the percentage of an additional dollar the family would spend on a specific good if given an additional dollar. The MPC is equal to the slope of the Engel curve (that is, expenditures as a function of income for each good or service) and is a critical component of elasticity; each of the elasticities shown in table 5 is derived from the marginal propensity to consume the same good.

It is also important to point out that the MPC can be derived in two ways. First, it can be derived for the average family in each ethnic group. These are shown in table 5 as the unadjusted MPC's. In other words, to compute the MPC for food at home for Hispanics, income and food expenditures for the average Hispanic family are used. However, these results by themselves do not tell the whole story; that is, how much of the difference in MPC is attributable to underlying differences across ethnic groups, and how much is attributable to differences in income and expenditures by ethnic groups? To answer this important question, the standardized MPC's are also presented. That is, the MPC is recalculated for each ethnic group, for a hypothetical family in that group whose income and food at home expenditures happen to match the all-consumer-unit averages. When these factors are held constant, the differences must be due to tastes or other factors captured in the income parameter estimate. An example of the calculation of the unadjusted and standardized MPC is shown subsequently.

In cases where the Engel curve is specified in linear terms, the MPC is constant and is equal to the value of the parameter estimate associated with income. It is estimated through the following regression equation:[5]

$Y = a + bI + e$

where

Y is expenditure for the good in question
a is the intercept
b is a parameter estimate
I is permanent income
e is the error term.

Using calculus, one can see that

$\partial Y/\partial I = b,$

and so b is equal to the MPC.

However, in the text, the Engel curves are not specified as a linear function. In all cases except transportation (described below), they are specified as

$Y^{\lambda} = a + b\ln I + e$

where

λ is a parameter estimated with a maximum likelihood procedure described in the text.

While it is still appropriate to use calculus to find the first derivative of the equation, the chain rule is now needed because Y is a function of λ. Therefore, we make the substitution

$U = Y^{\lambda}$

and so

$\partial U/\partial I = \partial U/\partial Y^{*}\partial Y/\partial I$

$\partial U/\partial Y = \lambda Y^{\lambda-1};$

$\partial(a + b\ln I + e)/\partial I = b/I;$

therefore,

$\partial U/\partial I = \lambda Y^{\lambda-1}{}^{*}\partial Y/\partial I = b/I$

$\partial Y/\partial I = b/(I\lambda Y^{\lambda-1})$

and because $0 < \lambda < 1$ in these cases,

$\partial Y/\partial I = bY^{1-\lambda}/\lambda I$

Because the MPC ($\partial Y/\partial I$) is related to levels of expenditure and income, average values are used to evaluate the MPC as described in the text.

As noted earlier, the one exception is transportation. In this special case, the optimal value of λ is found to be zero. From the original Box-Cox formula,

$Y^{*} = (Y^{\lambda} - 1)/\lambda$

it can be shown that as λ approaches zero, Y^{*} approaches the natural logarithm of Y.[6] In this case, then, the Engel curve is specified as

$\ln(Y) = a + b\ln I + e$

and so

$\partial U/\partial I = \partial U/\partial Y^{*}\partial Y/\partial I$

$\partial U/\partial Y = 1/Y;$

$\partial(a + b\ln I + e)/\partial I = b/I;$

therefore,

$\partial U/\partial I = (1/Y)^{*}\partial Y/\partial I = b/I$

$\partial Y/\partial I = b^{*}(Y/I)$

Given these equations, calculating the actual value of the MPC is not difficult, but care must be taken to get the correct value for b. In the case of Hispanics, the appropriate value for b is shown in the regression equation—that is, it is the parameter estimate associated with income. However, for the average white family, the proper value of b is found by summing the income parameter shown for Hispanics with the income parameter shown for whites. (The reasons are described in the text.) Note that b is used to calculate MPC in both the standardized and unstandardized cases. If the parameter estimate for white families is statistically significant, Hispanics and whites have different MPCs.[7] Therefore, even given the same income and food-at-home expenditure levels, Hispanics and whites are predicted to allocate an additional dollar of income differently .

Income elasticity. Another important value that can be computed using the regression results is the income elasticity of each expenditure category. Income elasticity (often symbolized by the Greek letter η) is defined as the percent change in an expenditure given a 1-percent change in income. (For convenience, the income change is assumed to be positive throughout this analysis.) Most goods and services have a positive income elasticity—that is, a 1-percent increase in income yields an increase in expenditures for most goods and services. If the income elasticity is greater than 0 but less than 1, the good is considered "inelastic" because it is not very responsive to income changes. For example, an income elasticity of 0.5 indicates that a 1-percent increase in income is associated with an increase of 0.5 percent in expenditures. However, if the elasticity is greater than 1, the good or service is called "elastic" because it is more responsive to these changes. Income inelastic goods are also frequently called "necessities," and income elastic goods and services are often called "luxuries." (Goods and services with negative income elasticities are called "inferior" goods because an increase in income is associated with a *decrease* in expenditures for these items; however, no inferior goods are found in this analysis.) As usual, total expenditures are used as a proxy for permanent income here.

Once the MPC is found, the income elasticity is easily calculated. Its value is simply the MPC multiplied by the inverse expenditure share, or

$\eta = \partial Y/\partial I^{*}I/Y$

For the cases where λ is greater than zero, the formula becomes

$\eta = (bY^{1-\lambda}/\lambda I)^{*}I/Y = bY^{-\lambda}/\lambda = b/\lambda Y^{\lambda}$

where Y is the average expenditure either for the ethnic group or for

all consumer units, depending on whether the unadjusted or standardized elasticity is being calculated.

In the case of transportation the elasticity is even easier to calculate. It is simply the parameter estimate associated with income, regardless of whether the unadjusted or standardized elasticity is calculated. (As with the MPC, unadjusted elasticities are calculated using average annual expenditures and income of each ethnic group, whereas standardized elasticities are calculated using average annual expenditures and income for all consumer units.) The following equation proves this statement, using the MPC for the situation where λ equals zero:

$$\eta = \partial Y/\partial I^{*}I/Y = b^{*}(Y/I)^{*}I/Y = b$$

Footnotes to the appendix

[1] Geoffrey D. Paulin and David L. Ferraro, "Do Expenditures Explain Income? A study of variables for Income Permutation," *Journal of Economic and Social Measurement*, 22, 1996, pp. 103–28.

[2] G.E.P. Box and D.R. Cox, "An Analysis of Transformations," *Journal of the Royal Statistical Society*, number 2, Series B, 1964, pp. 211–43.

[3] Even if λ is equal to 1, it is hard to imagine why Y is transformed to be $Y - 1$. The net result is that Y^{*} equals $Y - 1$, and substracting a constant from each observation of Y will not affect the distribution.

[4] Stuart Scott and Daniel J. Rope "Distributions and Transformations for Family Expenditures," *1993 Proceedings of the Section on Social Statistics* (Alexandria, VA, American Statistical Association, 1993), pp. 741–46.

[5] In this equation, the variable e is a random error term. Although the natural log of income is used in the equation, this symbol e should not be confused with the transcendental number e (approximately 2.71828), which serves as the base number for calculating the natural log.

[6] To show this without using calculus, choose some very small number, such as 0.0001, for λ. Choose some positive number for Y. (Choosing 1 will make the equation equal to zero, because 1 to any power still equals 1. Anything smaller will make the function negative, and a natural log is impossible to find. Because most expenditures, on average, are greater than $1, choosing Y greater than 1 is plausible.) Exponentiating Y^{*} should yield the original value assumed for Y.

[7] For convenience, both unstandardized and standardized results are marked to indicate a statistically significant difference in parameter estimates. Although the standardized results can be interpreted more scientifically, because they indicate that there is a difference in MPC even with other things being equal, the statistical significance marker for the unstandardized results emphasizes that the difference is not just because mean expenditures or permanent incomes are different, but that there are additional effects to consider.

The effect of working wives on the incidence of poverty

Earnings of working wives markedly lowered the incidence of poverty for all ethnic and race groups; poverty rates for Mexican immigrant and Cuban families dropped by hefty 25- and 20-percentage points, respectively, as a result of wives' earnings

Peter Cattan

Families in which husbands and wives both work ("working-wife families") are much less likely to experience poverty than families in which only husbands work. However, there are wide variations in the likelihood of poverty among married-couple families for different race/ethnic groups. Also, there are wide variations in the extent to which wives' earnings reduce poverty rates.

Previous detailed studies of economic hardship among Hispanic families, in particular, have tended to concentrate on families maintained by women (with no husband present). This article extends existing research by focusing on married-couple families and the extent to which working wives reduce the likelihood of poverty for Hispanic and non-Hispanic families.

Background

The Federal Government's official definition of poverty was originally developed by Mollie Orshansky for the Social Security Administration in 1964 and revised by Federal interagency committees in 1969 and 1980. Orshansky developed a set of pre-tax levels of family income, based on the Department of Agriculture's Economy Food Plan, which vary according to family size and presence and age of children. Families with incomes below the corresponding threshold are officially defined as poor. For example, in 1994, a family of four persons, with two children under 18 years, was below the poverty threshold if its income was less than $15,081.[1] The threshold was somewhat higher for a family of five persons with three children ($17,686). Adjusted to reflect inflation, the dollar amounts for poverty thresholds rise from year to year. These poverty thresholds are the basis for determining poverty rates, that is, percentages of persons or families living in poverty.

The importance of wives' earner status. Annual averages for 1994, derived from the Current Population Survey (CPS), show that Hispanic and white working-wife families were approximately one-fourth as likely to be poor as those in which only husbands worked.[2] It is clear in table 1 that families with working wives markedly outnumbered families in which the husband was the only earner. This dampened the average poverty rate for married-couple families in each ethnic/race group.

These statistics also show that among married couples with a working husband, Hispanics had an overall poverty rate that was more than four times that for whites. To a small extent, this differential in poverty rates—the "ethnic gap"—results from the fact that these Hispanic families were somewhat more likely than whites to have only the husband employed. This "earner-composition effect" should not be overemphasized, however, because Hispanic households were much more likely than whites to be poor for each of the husband-wife earner combinations.

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Research objectives. It seems reasonable to assume that wives' earnings would substantially reduce the average incidence of poverty for married-couple families. To gauge this effect, however, it is necessary to disaggregate it from the impact of husbands' earnings as well as other personal and family characteristics. Thus, the extent to which wives' earnings widened or reduced the ethnic gap in poverty rates also cannot be assessed without disaggregating the effects of husbands' and wives' earnings. Similarly, a more detailed analysis is needed to determine whether wives' earnings explain the relative advantage of working-wife families over those in which only the husbands work. Consider that, in families with nonworking wives, husbands' earnings are somewhat more concentrated at the lower levels (for example less than $15,000) than are the earnings of husbands whose wives work.[3] Of course, only a detailed analysis can determine whether the relationship between wife's earner status and husband's earnings is related to the incidence of family poverty.

Table 1. Average poverty rates for married-couple families, by race and ethnic group, 1994 annual averages

Work status	Poverty rates			Percent distribution		
	Hispanic	Black	White	Hispanic	Black	White
Husband worked, total	16.8	5.3	4.1	100.0	100.0	100.0
Wife did not work	30.5	10.7	9.7	38.9	20.6	25.0
Wife worked	8.1	3.9	2.3	61.1	79.4	75.0

SOURCE: Derived from the Current Population Survey.

Disentangling the effects of husbands' and wives' earnings. The approach taken here is modeled after a tabulation by Marta Tienda and Lief Jensen, which was intended to gauge "the importance of secondary earners [family members other than the householder] as a hedge against poverty."[4] To identify the impact of wives' earnings, Tienda and Jensen calculated two sets of "earnings poverty rates." One was based only on husbands' earnings, while the other was based on the earnings of husbands and wives combined. By excluding nonlabor income, as Tienda and Jensen explained, each set of rates indicates the percent of families that would be poor based on earnings alone. The difference between the two sets reflects the extent to which the wife's earnings lowered the incidence of married-couple poverty beyond what would have been anticipated based on the husband's earnings alone. Tienda and Jensen's results—for non-Hispanic whites and blacks, as well as for several Hispanic groups—indicate clearly that working spouses substantially lowered the average earnings poverty rate for married couples.

Tienda and Jensen's study took a "wide-lens" approach, tabulating patterns of poverty for married couples (and, separately, for families maintained by women), to identify major trends over several decades. Dual-earner married couples were not disaggregated from one-earner married couples. As a result, the calculations reflect the combined impact of two factors: the extent to which 1) wives' earnings lowered the incidence of poverty for *working-wife families*; and 2) "earner composition" dampened the overall poverty rate.[5] To assess the impact of wives' earnings on the incidence of poverty among working-wife families—excluding the effects of earner composition—and to determine whether factors other than wives' earnings explain the relative advantage of working-wife families over sole-earner families, this article examines married-couple families in which the husband worked, disaggregated by the wife's earner status.

Data

The data for this research is from the Latino supplement to the Panel Study of Income Dynamics (hereafter, Panel Study), a product of the Survey Research Center of the University of Michigan, and the "core" Panel Study surveys of non-Hispanic white and black families.[6] The Panel Study has been in existence since 1968. It was not until 1990 that a supplemental survey was carried out, consisting of a sample of 421 Puerto Rican, 493 Cuban, and 1,129 Mexican households. Interviews with respondents of the Latino supplement were conducted each subsequent year through 1995.[7] While the Latino supplement oversampled Puerto Rican and Cuban households to compensate for their relatively small numbers in the population as a whole, the Puerto Rican sample was still too small for the purposes of this study, as will be explained later.

Respondents provided a broad range of information, including their demographic characteristics, labor force activities, and socioeconomic characteristics. For example, household heads were asked to identify their own race and ethnicity and that of their spouse, as well as the migration status of household members—that is, whether they were born inside or outside the United States mainland. Household heads provided information concerning their own and their spouses' work activities throughout the year, as well as their earnings and other sources of income. Because questions concerning income are often sensitive or easily misinterpreted, it was important to establish trust and maximize communication with respondents. To accomplish these, interviewers were chosen who were themselves Hispanic and bilingual, and, when appropriate, were able to conduct their interviews in Spanish.

As is true for the CPS and other major surveys, the Panel Study collected annual income data retrospectively—that is, respondents were asked to disclose their income for the preceding calendar year. This study is based on data from the first wave of interviews. As such, most of the information refers to 1989, which may represent more normal conditions than the recessionary years that followed.

The sample used in this article was restricted to married couples with husbands 25 years of age or older who had done any work for wages or salaries in 1989.[8] This focus makes it possible to assess the poverty-reducing effect of wives' earnings over and above those of their husbands. Defined according to husband's ethnicity, there were 270 Mexican immigrant, 164 U.S.-born Mexican, 165 Cuban, 674 non-Hispanic black and 1,973 non-Hispanic white families in the sample.[9] In contrast to Mexican families, which could be distinguished by place of birth (United States or Mexico), the small sample size for Cubans prevented a similar breakdown. Another limitation is that restrictions imposed by the sample-selection criteria yielded an insufficient number of Puerto Rican households, which were therefore excluded. This was primarily the result of the disproportionate number of Puerto Rican families maintained by women and/or by nonemployed persons, a pattern that has been discussed in other studies.[10]

Profiles

Before turning to the core of this research—the effect of wives' earnings on the incidence of poverty—we should note that the next three tables (2, 3, and 4) provide a sense of socioeconomic diversity among the ethnic/race groups. As is true for tables presented later, these data are from the Panel Study and are restricted to married couples with husbands who were wage or salary workers in 1989. These couples fall into three categories: those with a sole earner (the husband), those with two earners (husband and wife), and those with three or more earners (husband, wife, and other family members). To simplify the presentation of results, the latter two categories (those with two earners and those with three or more earners) were collapsed into a single category—"both husband and wife were earners." (See table 2.)

After profiling the sample, the second half of this article determines the extent to which wives' earnings mitigated the incidence of poverty. Because the focus is on the effect of wives' earnings, this sample excludes dual- and multiple-earner families in which wives did *not* work.

Table 2 uses the official definition of poverty—which includes nonlabor income—to illustrate the variation in economic well-being among the ethnic/race groups. As the top line indicates, the total poverty rate was highest for Mexican immigrant families (17.3), followed by U.S.-born Mexicans (11.8), non-Hispanic blacks (6.1), and Cubans (6.0), while it was lowest for non-Hispanic whites (1.3).

This ranking tends to be congruent with patterns in table 3, which tabulates several demographic factors traditionally associated with the incidence of poverty.[11] Not surprisingly, there is a marked inverse relationship between proportions of husbands and wives who completed high school and family poverty rates by ethnicity/race. Thus, as table 3 shows, Mexican immigrants were, by far, the least likely to have completed high school, a strong contrast with non-Hispanic whites. In addition, relative to the other groups—particularly non-Hispanic whites—Mexican immigrant families were much more likely to include three or more children, which raises the level of income necessary to exceed the poverty threshold. Patterns for the other minority families show that they too tended to be overrepresented among demographic groups most likely to be poor.

Table 2. Poverty rates, percent distribution, and unweighted sample sizes for married-couple families with husbands who were wage or salary workers in 1989, by earner status and Hispanic origin and race of husband

Earner status	Mexican		Cuban	Non-Hispanic	
	Immigrant	U.S. born		Black	White
Poverty rate					
Total	17.3	11.8	6.0	6.1	1.3
Both husband and wife were earners	8.4	5.0	6.1	3.7	.8
Husband was the sole earner	35.4	31.2	5.9	18.4	3.8
Percent distribution					
Total	100.0	100.0	100.0	100.0	100.0
Both husband and wife were earners	67.0	74.0	67.0	83.2	82.1
Husband was the sole earner	33.0	26.0	33.0	16.8	17.9
Unweighted sample size					
Total	270	164	165	674	1,973
Both husband and wife were earners	168	113	123	563	1,641
Husband was the sole earner	102	51	42	111	332

NOTE: This table excludes families in which the husband and one or more other family members (not wife) were earners.

SOURCE: Latino Supplement to the Panel Study of Income Dynamics (PSID), Institute for Social Research, University of Michigan, 1990 wave.

Returning to table 2—focusing this time on the percent distributions (middle panel)—we find clearly that families in which both partners worked were very common across the ethnic/race groups, outnumbering families in which husbands were sole earners by at least 2 to 1. At the same time, non-Hispanic families were more likely than Hispanics to have working wives.[12] In general, families with working wives were much less likely to experience poverty than were families in which husbands were sole earners. Cuban families were the exception, with a poverty rate of approximately 6 percent regardless of the wife's earner status. A major reason for this anomaly is that nonlabor income had a particularly strong dampening effect on the poverty rate of these sole-earner families.[13]

For a more complete picture of ethnic/race variations in the economic well-being of families, table 4 shows various components of family income. These tabulations illustrate that median annual earnings for Mexican immigrant husbands were virtually half that for whites ($15,000 versus $29,964). This earnings disadvantage of Mexican immigrants undoubtedly stems, in part, from their lower average level of educational attainment.

Table 4 also shows that, across the five ethnic/race groups, a large percentage of families had three earners—that is, husband, wife, and one or more other family members. While the portion of families that received nonlabor income was also substantial, this varied markedly by ethnicity/race. For example, Cuban families were most likely to receive transfer income, while whites had, by far, the highest percent of families with income from assets.

Table 3. Selected characteristics of married couples with wage-earning husbands, by Hispanic origin and race of husband, 1989

Characteristic	Mexican		Cuban	Non-Hispanic	
	Immigrant	U.S. born		Black	White
Percent of husbands with high school diploma or beyond	23.8	61.2	72.2	78.7	87.7
Percent of wives with high school diploma or beyond	26.0	60.0	60.5	78.3	89.7
Mean age of husband	37.5	40.4	45.6	42.0	43.1
Mean age of wife	35.0	38.0	41.4	39.2	40.8
Mean family size	5.1	3.9	3.4	3.7	3.3
Percent with children under 18 years, total	100.0	100.0	100.0	100.0	100.0
No children	6.4	26.9	46.3	31.3	43.9
1 child	22.7	27.6	28.4	22.2	19.3
2 children	24.3	25.4	20.8	25.6	24.1
3 or more children	46.6	20.1	4.5	20.9	12.7

NOTE: This table excludes families in which the husband and one or more other family members (not wife) were earners.

SOURCE: Latino Supplement to the Panel Study of Income Dynamics (PSID), Institute for Social Research, University of Michigan, 1990 wave.

Table 4. Components of family income and total family income for married-couple families with husbands who were wage or salary workers in 1989, by Hispanic origin and race of husband

Characteristic	Mexican		Cuban	Non-Hispanic	
	Immigrant	U.S. born		Black	White
Median family income, total	$23,005	$29,350	$30,800	$34,064	$46,050
Husband's earnings					
Median annual earnings of husband, total	15,000	20,000	17,000	21,000	29,964
Where husband was sole earner	15,000	14,000	16,125	17,900	30,000
Where husband and wife were both earners	15,000	22,000	17,000	21,000	29,800
Wife's earnings (where wife is an earner)					
Median annual earnings of wife	8,000	10,000	10,000	12,500	13,000
Annual earnings of wife as median percent of total family income	29.9	33.9	32.3	35.1	28.0
Other source of income					
Percent of families with three earners	24.1	22.6	24.9	23.2	25.4
Percent of families with transfer income	28.3	27.5	38.6	31.0	31.9
Percent of families with income from assets	42.5	44.6	55.6	39.5	73.0

NOTE: This table excludes families in which the husband and one or more other family members (not wife) were earners.

SOURCE: The Latino Supplement to the Panel Study of Income Dynamics (PSID), Institute for Social Research, University of Michigan, 1990 wave.

Results

This section turns to the primary objective of this article, which is to determine the impact of wives' earnings on the incidence of poverty. Accordingly, as was noted earlier, a small group of married-couple families were excluded—those in which the husband and one or more other family members—but not the wife—were earners.[14] The sample does include families with other employed family members *if the wife worked.* In fact, as was noted in table 4, this latter category—"families with three earners"—makes up a substantial proportion of the sample.

As was true for the tabulations by Tienda and Jensen discussed earlier, the poverty rates examined in this section exclude income from assets and government transfer payments.

This eliminates ethnic/race variations in the extent to which nonlabor income cushioned families from poverty. To determine the impact of wives' earnings on the incidence of poverty, two sets of poverty rates were derived. As table 5 shows, the first set ("based on earnings of husband only") was calculated as if husbands' earnings were the only source of family income. The second set ("based on earnings of husband and wife") was calculated as if family income was made up of the combined earnings of husbands and wives. By contrasting the two sets, it was possible to determine the effects of wives' earnings on the incidence of poverty.

A focus on working-wife families. The top portion of table 5 (labeled "husband and wife were both earners") provides the two sets of earnings poverty rates, as well as two ways to assess the effects of wives' earnings—in absolute and relative terms. The *absolute effect* of wives' earnings is, of course, the simple subtraction of the two sets of poverty rates. As one might anticipate, the size of these differences tended to vary according to the magnitude of the "initial" poverty rate (based on husband's earnings). As indicated in table 5, while working wives markedly reduced the incidence of poverty across the five ethnic/race categories, the absolute impact was greatest for Mexican immigrant and Cuban families. Had their incomes been based on husbands' earnings only, 43.4 percent of Mexican immigrant families with working wives would have been poor, for example, compared to 18 percent when wives' earnings are included—a percentage-point difference of 25.4.[15] Similarly, 28.9 percent of these Cuban families would have been poor based on husbands' earnings, versus 8.9 percent based on combined earnings—a 20.0-percentage-point difference. By way of contrast, the earnings of non-Hispanic white wives accounted for a 7.7-percentage-point reduction. In this sense, the poverty-ameliorating effects of Mexican immigrant and Cuban working wives were much larger than those of other ethnic/race groups.

The *relative (percentage) difference* is the absolute difference divided by the initial poverty rate (based on husbands' earnings); this calculation adjusts for ethnic/race variations in the starting point. Wives' earnings reduced the poverty rate for whites by more than three-fourths. This was the most dramatic reduction of all ethnic/race groups. Nevertheless, the reductions for minority families were substantial. Wives' earnings reduced the poverty rate by more than half for both groups of Mexican families, and by more than three-fifths for Cubans and blacks.[16] The following section provides a closer look at the extent to which wives' earnings reduced the differential between poverty rates for minorities and whites.

The ethnic gaps. Table 6 shows the ethnic differentials in earnings poverty rates, derived by dividing the poverty rate for each minority group by that for whites. With the exception of Cubans, minority families in which only the husband worked were approximately 2 or 3 times as likely to fall below the poverty line as their white counterparts. The probability that sole-earner Cuban families would be poor was virtually identical to that for whites. In contrast, for families in which both partners worked, ethnic gaps based on combined earnings tended to be higher. There is little reason to applaud the lower degree of earnings inequality among sole-earner families, however, as it is based on a relatively high incidence of poverty for both whites and minorities.

The first two sets of ratios in table 6—for families in which the husband and wife both worked—show that the earnings of working wives reduced the incidence of poverty to a greater extent among white married-couple families than was the case for Mexican families, whether immigrant or not. Specifically, based on husband's earnings alone, the poverty rate for Mexican immigrant working-wife households was 4.6 times that for whites, while the ratio based on the *combined earnings* of Mexican immigrant husbands and wives was notably higher (8.2 times). This means that the earnings of white wives pushed a larger proportion of their households out of poverty than was the case for Mexican immigrants. The end

Table 5. Poverty rates based solely on earnings for married-couple families with husbands who were wage or salary workers in 1989, by earner status and Hispanic origin and race of husband

Earner status	Mexican		Cuban	Non-Hispanic	
	Immigrant	U.S. born		Black	White
Husband and wife were both earners					
Poverty rate based on earnings[1] of:					
Husband only	43.4	16.9	28.9	18.6	9.4
Husband and wife	18.0	7.7	8.9	7.2	2.2
Absolute (percentage point) difference	25.4	9.2	20.0	11.4	7.7
Relative (percentage) difference	58.5	54.4	69.2	61.3	76.6
Husband was the sole earner	38.6	48.2	16.1	42.0	17.2

[1] In this table, earnings exclude income from transfer payments and assets.

NOTE: This table excludes families in which the husband and one or more other family members (not wife) were earners.

SOURCE: The Latino Supplement to the Panel Study of Income Dynamics (PSID), Institute for Social Research, University of Michigan, 1990 wave.

result was to increase the already existing advantage of white families relative to Mexicans. The difference between the two sets of ratios was much less pronounced for blacks and minimal for Cubans. In sum, there is no evidence that including wives' earnings in the calculation of poverty rates reduced the ethnic gaps, at least as defined in this article,[17] although wives' earnings greatly reduced poverty rates for each ethnic/race group.

Why did the earnings of minority wives fail to lift a greater proportion of their families out of poverty than was true for the earnings of white wives? Answering this involves comparing minority and white low-income families by level of wives' earnings, as well as by the ratio of husband's earnings to the poverty threshold. For example, perhaps Mexican immigrant families lost the race to the poverty line because the earnings of their husbands placed them *further* below the poverty threshold than was the case for whites, and the earnings of Mexican immigrant wives did not sufficiently compensate for this disadvantage.

The data in table 7, which are for working-wife families in which husbands earned below the poverty threshold, suggest this tended not to be the case. (U.S.-born Mexican families were excluded from these tabulations because of their small sample size.) At the outset, note that the median ratio of husbands' earnings to the poverty threshold was slightly *higher* for minority than for white low-income families. This is primarily because minority husbands in low-income families actually earned more than whites. This relative disadvantage for whites was counterbalanced by lower median family sizes and wives' higher median earnings. These differentials were particularly dramatic for Mexican immigrant wives. The differences between black and white family sizes and wives' earnings were less pronounced, and thus, as was noted earlier, wives' earnings had a relatively slight effect on this ethnic gap. Finally, family sizes and earnings for Cuban and white wives tended to be rather similar and thus wives' earnings had a minimal effect on their poverty-rate gap.[18]

Working wives, versus nonworking wives. It may seem commonsensical that wives' earnings are the pivotal reason why the poverty rate for families in which both partners work tends to be lower than that for families in which the husband is sole earner. If this were true, the predominance of working wives could be said to exert an especially strong dampening impact on the overall poverty rate for married couples. As chart 1 illustrates, however, the role of wives' earnings in this regard varies by ethnicity/race. In fact, for U.S.-born Mexican, and non-Hispanic black and white families, the commonsensical view does not apply, as husbands' earnings alone explain why working-wife families were less likely to be poor than sole-earner families. This implies that, among families of similar size, husbands of working wives earned much more than their sole-earning counterparts. In contrast, for Mexican immigrant and Cuban families, the lower incidence of poverty for working-wife families is exclusively attributable to the effect of wives' earnings. Before including these effects, as the chart shows, the incidence of poverty was actually *higher* for dual-earner families than for those in which only the husband worked.

Table 6. Ratios of minority-to-white poverty rates for married-couple families with husbands who were wage or salary workers in 1989, by earner status

Earner status	Mexican		Cuban	Non-Hispanic black
	Immigrant	U.S. born		
Husband and wife were both earners				
Ratio based on earnings of:				
Husband only	4.6	1.8	3.1	2.0
Husband and wife	8.2	3.5	4.0	3.3
Husband was the sole earner	2.2	2.8	.9	2.4

NOTE: Data for this table were derived from table 5.

SOURCE: The Latino Supplement to the Panel Study of Income Dynamics (PSID), Institute for Social Research, University of Michigan, 1990 wave.

Table 7. Selected characteristics of low-income married-couple families in which both husband and wife were wage or salary workers in 1989, by Hispanic origin and race of husband

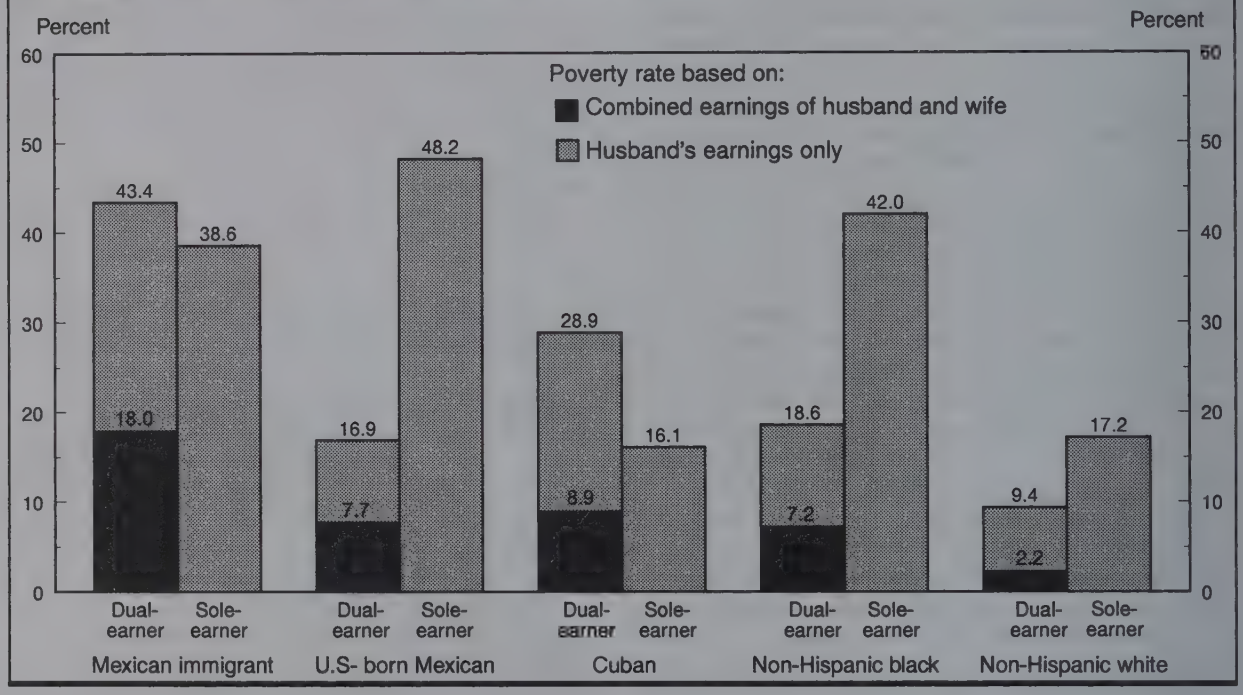
Characteristic	Mexican immigrant	Cuban	Non-Hispanic	
			Black	White
Median ratio of husbands' earnings to poverty threshold	0.69	0.66	0.66	0.56
Husbands' median annual earnings	10,400	8,000	8,000	6,200
Wives' median annual earnings	7,000	7,800	7,067	8,000
Median family size	6	4	5	4
Sample size	73	33	103	157

NOTE: Low-income families are those in which the husbands earned below the poverty threshold. U.S.-born Mexican families are excluded from these tabulations because of small sample size (N=18).

SOURCE: The Latino Supplement to the Panel Study of Income Dynamics (PSID), Institute for Social Research, University of Michigan, 1990 wave.

IN SUMMARY, this article has shown that wives' earnings had an important poverty-mitigating effect for Mexican immigrant, U.S.-born Mexican, Cuban, and non-Hispanic black and white families. Focusing exclusively on working-wife families, the first analysis provided two different, yet equally valid, ways of analyzing ethnic/race variations in the impact of wives' earnings. On the one hand, the *absolute* declines in the poverty rate attributable to wives' earnings were most impressive for Mexican immigrant and Cuban families. Their ex-

Chart 1. Earnings poverty rates by earner status and Hispanic origin and race of husband, 1989



tremely high "starting points" (poverty rates based on husbands' earnings) dropped by hefty 25 and 20 percentage points, respectively, as a result of wives' earnings. This far exceeded the reductions for the other ethnic/race groups. In contrast, the *relative* declines, which adjust for the starting points, show that the incidence of poverty tended to fall at a faster pace for white families than for minorities. As a result, wives' earnings did not decrease the "ethnic gaps" (the ratio of minority/white family poverty rates). In fact, relative ethnic/race equality—albeit with a higher incidence of poverty for all—was more closely approximated when the effects of wives' earnings were excluded. This is attributable to the tendency for white wives to earn more than minorities and for white families to be smaller than those of minorities.

A second analysis notes that, regardless of ethnicity/race, families in which the husband and wife both work are much less likely to be poor than those in which the husband is sole earner. It seems tempting to attribute this entirely to the poverty-mitigating effects of wives' earnings. This is the correct explanation, in fact, for Mexican immigrant and Cuban families. However, the story is different for black and white non-Hispanic, and U.S.-born Mexican, families. The lower incidence of poverty for these families with working wives is primarily attributable to their husbands, who tended to earn substantially more than did the husbands of nonworking wives. □

Footnotes

ACKNOWLEDGMENT: Peter Cattan was formerly an economist in the Division of Current Employment Analysis, Bureau of Labor Statistics. The author is indebted to many of his colleagues at the Bureau of Labor Statistics. Harvey Hamel and Harley Frazis provided particularly helpful comments on earlier drafts of this article. Steve Miller graciously provided assistance with tests of statistical significance.

[1] "Poverty Thresholds by Size of Family and Number of Related children: 1994," in *Income, Poverty, and Valuation of Noncash Benefits: 1994, Current Population Reports,* series P60-189 (U.S. Department of Commerce, Bureau of the Census), table 8.

[2] "Work Experience of Family Members, by Poverty Status of Families: 1994," unpublished tabulations from the *Current Population Survey, Poverty in the United States* series (U.S. Department of Commerce, Bureau of the Census), table 19.

[3] "Work experience of wives by husbands' annual earnings in 1994, presence and age of children, educational attainment of wives, and race and Hispanic origin, primary families, March 1995," unpublished marital and family tabulations from the *Current Population Survey* (U.S. Department of Labor, Bureau of Labor Statistics), table A.

[4] Marta Tienda and Leif Jensen, "Poverty and Minorities, A Quarter-Century Profile of Color and Socioeconomic Disadvantage," in Gary D. Sandefur and Marta Tienda, eds., *Divided Opportunities: Minorities, Poverty, and Social Policy* (New York, Plenum Press, 1988). The term "householder" generally refers to the person in whose name the home is owned or

rented. If a home is owned jointly by a married couple, either the husband or wife may be the householder. While Tienda and Jensen used the terms "head" (which was replaced by "householder" in the 1980 census) and "spouse," for the sake of simplicity, their findings for married couples are discussed here in terms of "husband" and "wife."

[5] Tienda and Jensen's analysis also provides evidence that the poverty-reducing effects of working wives increased over the 25-year period of the study (1959–84). These tabulations do not estimate the extent to which this reflects growth in the proportion of working-wife families among married couples, as opposed to a strengthening in the ameliorative impact of wives' earnings among working-wife families.

[6] For an earlier article using the Latino Supplement to the Panel Study of Income Dynamics, see Johanne Boisjoly and Greg J. Duncan, "Job losses among Hispanics in the recent recession," *Monthly Labor Review*, June 1994, pp. 16–23.

[7] Greg Duncan, Martha Hill, James Lepkowski, Rodolfo de la Garza, Angelo Falcon, Chris Garcia, and John Garcia, *Documentation for the 1990 PSID/LNPS Early Release File*, (Ann Arbor, University of Michigan Survey Research Center, April 1992). The website address for information and data on the Panel Study of Income Dynamics is http://www.umich.edu/~psid

[8] Self-employed workers were excluded because distinguishing between the labor and asset portion of their income tends to be rather imprecise.

[9] The sample of Mexican families used in this article does not represent that in the population with regard to nativity. Thus, the 1990 census indicates that slightly more than half of Mexican families were native born, versus 38 percent in this sample. However, within the two categories for nativity, the statistics resemble those in the census for several relevant variables, including the incidence of family poverty, presence of children, and householder's age and educational attainment.

[10] For example, see Marta Tienda, "Puerto Ricans and the Underclass Debate," *The Annals of the American Academy of Political and Social Science*, January 1989, pp. 105–84; Gary D. Sandefur and Marta Tienda, "Introduction: Social Policy and the Minority Experience," *Divided Opportunities*, pp. 1–17; and Tienda and Jensen, "Poverty and Minorities: A Quarter-Century Profile of Color and Socioeconomic Disadvantage."

[11] For example, see Monica Castillo, *A Profile of the Working Poor, 1994*, Report 905 (Bureau of Labor Statistics, June 1996).

[12] For an analysis of this tendency, see Marta Tienda and Jennifer Glass, "Household Structure and Labor Force Participation of Black, Hispanic, and White Mothers," *Demography*, August 1985, pp. 381–94.

[13] Thus, excluding nonlabor income, the incidence of poverty for sole-earner Cuban families was 16.1 percent, versus 8.9 percent for their dual-earner counterparts. See table 5 in this article for poverty rates based solely on earnings.

[14] Depending on ethnicity/race, these families made up 6.1 percent to 16.5 percent of all married couples with working husbands.

[15] These findings are in keeping with other evidence that multiple earners in immigrant groups tended to mitigate the incidence of poverty below that of their native-born counterparts. See Leif Jensen, "Secondary Earner Strategies and Family Poverty: Immigrant-Native Differentials, 1960–1980," *International Migration Review*, January 1991, pp. 113–39; and Leif Jensen, "Poverty and Immigration in the United States: 1960–1980," in *Divided Opportunities*. For an earlier analysis focusing on Cubans, see Lisandro Pérez, "Immigrant Economic Adjustment and Family Organization: The Cuban Success Story Reexamined," *International Migration Review*, January 1986, pp. 4–20.

[16] Tests of statistical significance indicated that, for black, U.S.-born Mexican, and Mexican immigrant families, the reduction in poverty rates was significantly lower than that for whites at the .10 level. In contrast, the test showed that the reduction in the poverty rate for Cuban families was not significantly different than that for whites. This means we must remain agnostic as to whether, in fact, wives' earnings had a lesser or greater impact on the poverty rate for Cuban families relative to that for whites. It is possible that the failure to obtain a statistically significant difference in this regard is the result of the relatively low number of Cuban families in the sample. These tests were performed using t-tests based on standard errors derived from Taylor series linearization and approximated design effects appropriate for the Panel Study of Income Dynamics.

[17] Tests of statistical significance were performed on the difference between the ethnic gap based on husband's earnings relative to the gap based on the combined earnings of husband and wife. For black, U.S.-born Mexican, and Mexican immigrant families, wives' earnings increased the ethnic gap by an amount that was statistically significant. As was also shown by the test described in footnote 16, the difference between the two ethnic gaps for Cubans was not statistically significant.

[18] Additional tabulations, not shown in this article, indicate that minority husbands in low-income families tended to work more hours per year and to be paid at a higher rate than white husbands in low-income families. In contrast, while average annual hours for minority and white wives were similar, average hourly earnings for minority wives were generally much lower. See Jensen, "Immigrant-Native Differentials," for further research concerning the poverty-mitigating effect of "secondary earners" (wives and other family earners) in families with husbands whose earnings were below the poverty line.

Multimedia and digital visual effects: an emerging local labor market

Surveys of this industry in southern California reveal that its workers are predominately young, white, highly educated, and well paid; most of them originated from outside the region, but their labor market activities are characterized by complex social networks

Allen J. Scott

Since the 1980s, the multimedia and digital visual effects industry has been emerging at an extremely rapid pace in the State of California.[1] Two geographic areas, namely, the Bay Area and southern California (principally Los Angeles County) contain most of the industry's establishments. The southern California region is now moving into a position of dominance, not only in the State, but probably in the world at large.

In its narrowest sense, the multimedia industry consists of firms that produce compact disks and materials for diffusion over the worldwide web. These products can be further categorized by substantive content, such as games, interactive stories, educational and self-help materials, business aids, and advertising. In this sense, the multimedia industry is currently pushing all media (visual, textual, and audio) into convergence around interactive, digital methods of presentation. However, the industry can be defined in a somewhat wider sense so that it includes not only the activities previously indicated, but also all forms of digital enhancement of conventional media—particularly, a wide range of computerized approaches to graphic design. It is this larger conception of the industry—the multimedia *and* digital visual effects industry—that will predominate in this article. Applications of computer graphics, particularly in the fields of animation and special effects, have developed apace in recent years, and Hollywood feature films and television programs now routinely depend on ancillary high-technology image-processing operations for their commercial success.[2]

The remarkable dynamism of southern California's multimedia and digital visual effects industry is, of course, closely related to the region's overwhelming and long-standing importance as a center of the entertainment industry. As such, southern California represents the country's most densely developed concentration of specialized workers in such domains as storywriting, visual dramatization, and scenario production. It is also a place where multimedia content providers can always find an available supply of subcontracting services in film and video production, photography, graphic art, scriptwriting, musical composition, acting, voice-over, and so on. Even so, and in view of the recent mushrooming of the multimedia industry in the region, many firms interviewed for this research reported an acute shortage of workers with computer graphics skills and other forms of multimedia expertise.

The precise size of the multimedia and digital visual effects industry in southern California is extraordinarily difficult to calculate. There is no generally agreed upon definition of just what the industry is, or how it might be distinguished from functionally adjacent sectors such as motion picture production, publishing, software services, and so on. An earlier study, based on the narrow

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definition of the industry (as described earlier), suggests that in 1995 there were about 188 multimedia establishments in the entire southern California area, south of and including Santa Barbara. However, according to the broader definition of the industry (that is, including all forms of digital visual effects), the number of establishments in the region can be provisionally estimated at 382. The median number of workers employed in these establishments is roughly 10. The total number of employees in the industry is unknown and could not be assessed without more complete information on the frequency distribution of employment by establishment. For comparative purposes, it might be useful to note that in 1994, total employment in Los Angeles County in SIC 781 (motion picture production and services) was 129,863 in 4,416 establishments.[3]

This article describes the shape, form, and emergence of the local labor market for multimedia and digital visual effects workers in southern California. Much of the article is devoted to a description of data collected in a questionnaire survey of workers in this new and important industry. The article is concerned more generally with the spatial and temporal filtering of workers through the large metropolis and associated institutions.[4] Concomitantly, it also seeks to provide a number of specific empirical insights into the broader problem of locational agglomeration and regional development.[5]

Empirical framework

The study of local labor markets is almost always greatly hampered by a dearth of pertinent statistics. It is usually quite difficult to find information about the personal and occupational characteristics of workers on an individual basis, especially for cases in which there is a requirement that the data be coded, in addition, by location and sector of employment. Obviously, the best way to obtain microdata of this sort is by direct questionnaire methods, which are invariably expensive and time consuming. A particular problem in the present context is actually identifying a target population of individuals to be surveyed, and all the more so because there is no official designation of the multimedia and digital visual effects industry. Even when the definitional problem is resolved, the major obstacle of actually delivering questionnaire forms to workers remains. One possible line of attack is to distribute questionnaires to workers at their place of employment, but this approach encounters the difficulty of securing the cooperation of firms. Also, this approach is subject to peculiar biases because it typically results in returns being clumped by firm—a problem that is exacerbated when only a few firms can be induced to participate in the survey (above all, when some of them are unusually large in size).[6] The alternative method is to survey workers at their place of residence. However, this approach faces the even more daunting problem of constructing, at the outset, an unbiased list of home addresses. A third approach is to gain access to potential respondents through employee organizations, such as unions or guilds,[7] although again, strong biases may be expected to enter into any resulting survey when these organizations account for only a fraction of all employees in the selected industry.

Unfortunately, there is no organization in southern California that claims or even seeks to represent all multimedia and digital visual effects workers in the region; and there is none that comes close to embracing a majority of these workers. That said, there are various interest groups in the region whose members are either employed in the industry or are actively seeking jobs in it. Two of these interest groups are of particular significance in this study because they are fairly large in size and because, taken together, their membership appears to provide a good representation of employment structures in the industry. Each of these groups is a local chapter of a wider international society. They are:

- *International Interactive Communications Society* (hereafter, Communications Society). The objectives of this group are to provide information, professional support, and skills development for individuals across the spectrum of the interactive arts and technologies business. Its membership is recruited broadly from professionals in multimedia, computing, telecommunications, education, online services, media, publishing, and entertainment. In total, the Communications Society has 34 individual chapters throughout the world. When this study was initiated in the summer of 1996, the Los Angeles chapter had a membership of 612.
- *Association of Computing Machinery's Special Interest Group on Computer Graphics* (hereafter, Graphics Group). Like the Communications Society, the Graphics Group is dedicated to providing information, professional assistance, and training, but to a rather more narrowly defined membership. This group focuses primarily, but not exclusively, on computer graphics specialists. There are 26 chapters worldwide. The Los Angeles chapter had 820 members when this project started.

Despite the fact that members of the Communications Society are drawn from the entire spectrum of occupations in the industry (including business and financial operations, production management, writing, and so on), while Graphics Group members tend to be rather more technically oriented, there is some overlap of membership between the two. Neither of the two organizations provides an exhaustive or unbiased window onto local labor markets in the multimedia and digital visual effects industry, but together, they probably yield as comprehensive a picture as is possible to obtain at

this time with limited resources. The advantage of basing the study on two different but complementary organizations is that the information they offer provides a degree of focus that would otherwise assuredly be lacking if we looked only at one of them in isolation from the other.

With the full cooperation of the officers of the local chapters of the Communications Society and the Graphics Group, an identical questionnaire was mailed to all members during the second half of 1996. The total number of responses from members of the Communications Society was 171 (a response rate of 27.9 percent) and 159 from the Graphics Group (a response rate of 19.4 percent). These response rates are fairly representative for this kind of survey, although the sharp and statistically significant difference between the two rates obtained remains inexplicable. In the absence of any definitive information on the social characteristics of the underlying population of workers, we have no way of assessing what specific biases may exist in the questionnaire returns, although it is probably safe to assume that bias of some sort is present. Accordingly, the results reported in later sections need to be treated with due caution. In view of this warning, premature generalization of the survey results will be avoided. Even so, the results, taken simply on their own terms, tell us much about significant fractions of the labor force in this burgeoning industry and its associated employment structures in southern California. They are also generally consistent with information gathered in a parallel series of some 25 face-to-face interviews with representatives of multimedia and digital visual effects firms in the region.

Profiles of questionnaire respondents

Geographic profile. Exhibit 1 maps out the residential locations of all questionnaire respondents together with a set of isolines indicating the generalized spatial pattern of the digital visual effects industry in southern California. The residences of questionnaire respondents are depicted individually. Any given isoline in the map represents a locus of points with identical levels of accessibility to establishments in the multimedia and digital visual effects industry, where accessibility is defined as Σd_j^{-1}, and d_j is the distance from any arbitrarily given point to the j^{th} establishment in the industry.[8]

The main locational buildup of the multimedia industry is in and around Santa Monica and the western part of the city of Los Angeles. The industry then extends eastward and northward through Hollywood and Burbank and into the San Fernando Valley. A very minor outlier of the industry can be observed in Orange County to the south. The exhibit reveals the existence of a correspondence between respondents' residences and the general location of workplaces in the industry. This same observation is corroborated by questionnaire data which indicate that the median commuting time for respondents of the Communications Society is 15 minutes, and 20 minutes for the Graphics Group. In fact, this kind of tight spatial relationship between employment places and the residential locations of workers is a persistent feature of local labor markets in all large metropolitan areas, even in Los Angeles, which is often (mistakenly) seen as being a more-or-less fluid commuting field across its entire extent. The correspondence is magnified in the present instance by the fact that the demographic features of questionnaire respondents match closely to the generalized social profile of the residential neighborhoods of the western reaches of the Los Angeles metropolitan area.

Demographic profile. Questionnaire respondents can be represented, for the most part, as a rising cohort of young, successful professionals in which women play a noticeable and presumably increasing role. Of the Communications Society respondents, 39.9 percent are female, compared with 29.1 percent in the Graphics Group. As shown in table 1, most of the individuals who returned a questionnaire are in their 30s—for communications respondents, the median age is 39 and for graphics respondents, it is 37. Both groups, in addition, are overwhelmingly dominated by whites, with Asians, Hispanics, and African-Americans representing disproportionately small percentages of all respondents. (See table 1.) Annual salaries are high; the median salary for communications respondents is $55,000, and for the more technically oriented graphics respondents, $70,000.

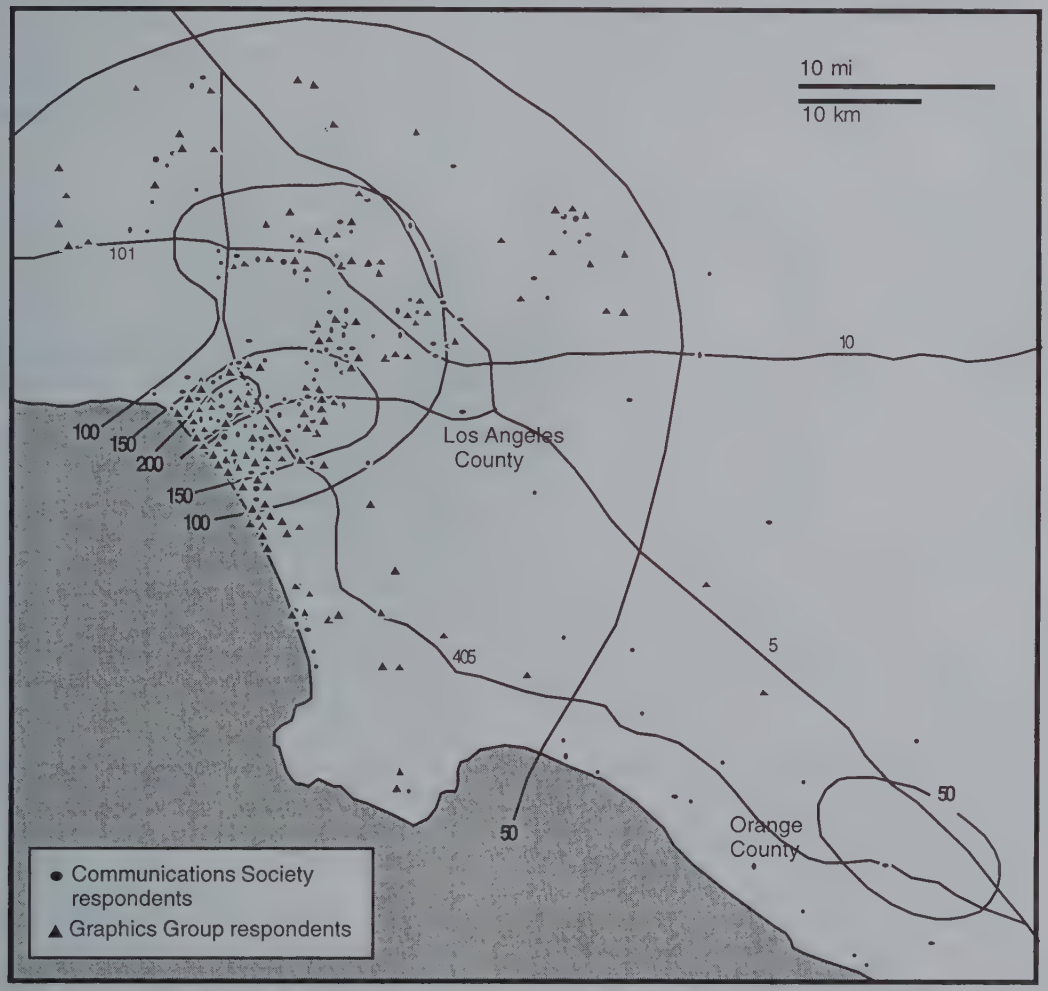
Only about a quarter of all respondents were actually born in southern California. The remaining three-quarters were, for the most part, born outside of the region or outside of the State. Of respondents from the Communications Society, 6.1 percent were born in a foreign country, compared with 21.2 percent for the Graphics Group. Most of the foreign born came from Asia, Canada, and Europe. The relatively high proportion of the foreign born in the work force is doubtless a reflection of the reported shortage of computer graphics skills in both California and in the country at large. (Mobility and job recruitment are discussed later.)

Employment and recruitment patterns

Employment by sector. A clear majority (79.0 percent) of all the respondents is employed in a core group of sectors, with the balance being employed in sectors that are at best only marginally connected to the multimedia and digital visual effects industry. (See table 2.)

Core sectors are multimedia (in the narrow sense), motion pictures/TV/video, special effects, animation, and so on. Note that respondents from the Communications Society are heavily concentrated in the multimedia sector. By comparison, respondents from the Graphics Group tend to gravitate

Exhibit 1. Residential locations of questionnaire respondents and levels of accessibility to multimedia and digital visual effects establishments in southern California, 1996



more to sectors involving motion pictures, special effects, and animation, where their advanced levels of computer graphics skills are in particularly high demand at the present time. Noncore sectors of employment reported by respondents are education, the defense industry, legal services, health services, and miscellaneous industries. Even in these noncore sectors, however, respondents tend to occupy jobs that, in one way or another, involve multimedia skills and techniques.

There is some filtering of individuals from noncore sectors to core sectors, with education and the defense industry being the most common points of origin. Thus, (combining data for both the Communications Society and the Graphics Group), 30.8 percent of the 26 respondents who reported that their job, previous to the current one, was in education, shifted into core multimedia and digital visual effects sectors, as defined. The corresponding figure for the 12 respondents whose previous job was in the defense industry is 25 percent. While these figures are small, they nevertheless suggest that the Los Angeles area as a whole probably has important reservoirs of experienced potential jobseekers ready to move into the multimedia and digital visual effects industry. The questionnaire data indicate that once individuals are employed in core sectors, any subsequent job shifts tend to be virtually entirely within the core.

Employment status, occupations, and computer skills. Almost all questionnaire respondents are currently employed in full-time jobs. (See table 3.) A very significant number (20.3

Table 1. Age and racial/ethnic characteristics of respondents to the multimedia and digital visual effects industry questionnaire, southern California, 1996

Category	Communications Society	Graphics Group
Age		
Usable responses		
Number	164	156
Percent:		
20–24	.6	2.6
25–29	8.5	14.1
30–34	20.1	28.2
35–39	22.6	18.6
40–44	19.5	13.5
45–49	16.5	9.6
50–54	4.3	7.1
55–59	4.9	2.6
60–64	2.4	1.9
65 and older	.6	1.9
Race and ethnicity		
Usable responses		
Number	158	142
Percent:		
White	92.4	88.0
Asian	1.3	7.7
Hispanic	4.4	1.4
African American	1.9	2.8

percent) of respondents from the Communications Society are engaged in freelance activities, compared with only 7.3 percent of respondents from the Graphics Group. The much higher percentage of respondents from the Graphics Group in regular salaried employment probably results, in part, from the demand for firm-specific human capital in the motion picture, special effects, and animation industries (in which these respondents are mostly employed). Firms like Disney Interactive, Dreamworks, Sony Pictures, and Warner Digital insist upon high levels of intrafirm teamwork and product designs that are safeguarded by copyright and trademark provisions. Such firms are thus apt to prize a captive labor force that is more likely to be responsive to their special needs than freelance workers. For both respondent groups, the median length of current job tenure is 2 years. Respondents from the Communications Society claim to have been employed in the industry as a whole for 3.0 years, compared with 4.4 years for respondents from the Graphics Group. In addition, over their entire employment experience in the multimedia and digital visual effects industry, Communications Society respondents have worked for an average of 2.82 firms, and Graphics Group respondents, for an average of 3.4 firms. These figures suggest that there is some modest, but not excessive, employment instability in the industry.

The occupational characteristics of respondents are shown in table 4.[9] Production/direction refers to occupations (at various levels of seniority) in which the main responsibility for design, organization, and execution of multimedia and digital visual effects work (including website construction) resides. Specialized programming and animation/graphic design occupations are broken out as distinctive categories in their own right in table 4. In practice, there are rarely sharp divisions of occupational function in the multimedia and digital visual effects industry, and the information in the table needs to be interpreted with a high degree of flexibility.

For the most part, the data arrayed in table 4 are unsurprising. Most workers in the industry are engaged in central production, direction, programming, animation, and graphics occupations. Communications Society respondents are patently more entrepreneurial and business oriented than those in the Graphics Group, in the sense that a relatively high proportion of them are owners, managers, and individuals in business/financial/sales occupations. The Graphics Group is much more focused on technical occupations involving programming, animation, and graphics. Another distinction between the two groups may be elaborated in terms of their command of computer skills. Almost two-thirds of all respondents indicated that they had some computer programming proficiency, with the two most commonly known languages for Communications Society respondents being HTML (39.2 percent) and Lingo (22.8 percent). For Graphics Group respondents, the two languages are C/C++ (40.1 percent) and HTML (37.0 percent). HTML is an easily learned and widely used language for building web pages; Lingo is a medium-level programming language with applications in the graphics and business areas; and C/C ++ is a fundamental programming language involving significant technical expertise. Once again, the two groups emerge with significant overlap,

Table 2. Employment sectors of respondents to the multimedia and digital visual effects industry questionnaire, southern California, 1996

Sector	Communications Society	Graphics Group	Combined
Usable responses			
Number	144	143	287
Percent:			
Core sectors, total	80.0	77.6	79.0
Multimedia	42.4	12.6	27.6
Motion pictures/ TV/video	11.1	14.0	12.5
Special effects	.0	20.3	10.1
Animation	7.0	17.5	9.1
Software design	5.6	5.5	5.6
Multimedia consulting and training	6.9	1.4	4.2
Advertising	5.6	2.1	3.9
Telecommunications	2.8	2.1	2.5
Graphic design	2.1	2.1	2.1
Printing and publishing	2.8	.0	1.4
Noncore sectors, total	20.2	22.4	21.3
Education	8.3	4.9	6.6
Defense industry	2.1	9.1	5.6
Legal services	2.8	.7	1.8
Health services	.7	2.8	1.7
Miscellaneous	6.3	4.9	5.6

Table 3. Selected employment characteristics of respondents to the multimedia and digital visual effects industry questionnaire, southern California, 1996

Variable	Communications Society		Graphics Group	
	Value of variable	Number of usable responses	Value of variable	Number of usable responses
Percent employed	94.7	168	98.0	158
Percent employed full time	85.8	163	96.6	146
Percent working freelance	20.3	157	7.3	155
Median length of time with current employer (years)	2.0	148	14.4	148
Median length of time engaged in multimedia work (years)	3.0	161	14.4	148

but with Communications Society members veering to the less technical, and the Graphics Group members to the more technical side of the industry.

Mobility and job recruitment. As previously mentioned, most of the questionnaire respondents were born outside of southern California. Even more significant, roughly half of all respondents received their highest level of education outside of the region and, for the most part, outside of the State. Furthermore, 3.8 percent of the respondents from the Communications Society and 6.1 percent of those from the Graphics Group were educated in a country other than the United States. These data signify, once again, that the multimedia and digital visual effects industry in southern California is highly dependent on persons who come from other areas. Nevertheless, once they enter the southern Californian labor market, workers in the industry tend to become quite rooted in the region. Thus, of all respondents (that is, the majority) who stated that their current job is not the first job they have ever held, as many as 83.0 percent indicated that the previous place of employment was located in southern California.

Job recruitment patterns in the multimedia and digital visual effects industry are displayed in table 5, and they are much alike for both groups of respondents. Observe that the data in the main body of the table are defined as percentages of employed workers only (that is, excluding founders of firms and the self-employed). By far, the greatest proportion of all workers in the industry is recruited either on the basis of information provided by friends or organizational contacts, or by means of direct communication between the prospective employer and the employee. This observation is consistent with other studies of recruitment patterns that conclude that most information about job openings travels, in one way or another, by word of mouth.[10] Advertising also accounts for a modest share of actual recruitment in the industry, with a perhaps anomalously high frequency among Communications Society respondents.

Education and training

The majority of respondents have attained to high levels of educational qualification. Most respondents have at least a 4-year college degree, with significant numbers also having acquired master's degrees. (See table 6.) About half of all respondents graduated with their highest degree in 1985 or later. The educational majors completed by questionnaire respondents are shown in table 7. Most of the respondents have received forms of education that are highly appropriate for careers in the multimedia and digital visual effects industry. Well over 50 percent of them majored in such fields as film, graphics, business, and computer science, while significant numbers of the rest majored in engineering, fine arts, social science, and liberal arts. Educational pathways into the industry are thus multiple, but nevertheless rather clearly focused on the artistic, business, or technical skills most in demand by employers.

There is also a remarkable wealth of relevant educational and training establishments in the region. (See table 7.) Of the respondents who earned their highest degree in southern California, as many as 34.0 percent graduated from the University of California-Los Angeles, followed by the University of Southern California (13.9 percent), California State University-Northridge (9.0 percent), and Art Center Pasadena (5.0 percent). The remainder graduated from some 24 different colleges and universities scattered throughout the region.

In addition, 70.2 percent of the respondents from the Communications Society and 55.3 of the respondents from the Graphics Group indicate that they have taken at least one part-time course in multimedia or computer techniques since graduation. The lower figure for graphics respondents is no

Table 4. Occupations of respondents to the multimedia and digital visual effects industry questionnaire, southern California, 1996

Occupation	Communications Society	Graphics Group
Usable responses		
Number	157	150
Percent:		
Owner/senior management	24.8	7.3
Business/financial/sales	18.5	4.7
Production/direction	26.1	20.7
Programming/technical support	12.1	25.3
Animator/graphic designer	7.0	38.0
Writer	5.1	.7
Other	6.4	3.3

Table 5. Method of recruitment of respondents to their current jobs, multimedia and digital visual effects industry questionnaire, southern California, 1996

Recruitment method	Communications Society	Graphics Group
Usable responses		
Number	138	145
Percent:		
Friends or organizational contacts	37.2	43.3
Contact initiated by employer	22.7	23.9
Contact initiated by employee	12.7	14.2
Advertisement	17.3	9.0
Job fair	1.8	5.2
Employment agency	8.2	2.2
School placement	.0	2.2
Number of cases for above variables	110	134
Number of founders of firms or self-employed	28	11

doubt a function of their relatively high level of technical expertise upon graduation. The institutions providing the part-time courses taken by respondents are exhibited in table 8. Respondents were asked to name these institutions in an open-ended fashion and the answers are arrayed simply by number of mentions. Some of the institutions noted in the table are conventional colleges and universities, others are private establishments providing in-house programs or vendors offering special training, and yet others are professional associations of different kinds (including unions and guilds). The miscellaneous category shown in the table represents the many institutions that received only one mention each. The information in table 8 indicates that there are many types of part-time training facilities that pertain to the multimedia and digital visual effects industry in southern California. And, the University of California at Los Angeles again leads the way.

The abundance of educational and training opportunities offered in the region for those seeking careers in the multimedia and digital visual effects industry suggests that there is a significant degree of institutional responsiveness to the current high demand for relevant skills and aptitudes in southern California. If there *is* a labor shortage in the industry at the present time, it is perhaps less a function of the absence of basic instructional infrastructures than it is a consequence of the sudden recent surge in the demand for appropriately trained labor. The danger in responding to this shortage by increasing the number of education and training programs in the region is that it is apt to result in a long-term over-supply of labor. The main objectives of policy in this regard should not be so much to expand the number of programs as to improve the quality of those that exist, while ensuring higher levels of entry by underrepresented groups.

Professional organizations

Questionnaire respondents were asked to list in open-ended format all the professional associations, unions, and guilds to which they belong. The answers to this query are tabulated in table 9, which is arranged simply in terms of the number of times each organization was mentioned.

The data suggest that multimedia and digital visual effects workers are notably gregarious on the professional front. Respondents are joined together in webs of intersecting affiliations in a wide variety of formal organizations (including the Communications Society and the Graphics Group), as well as in many different informal support groups. Note that 18 Communications Society respondents claimed to be members of the Graphics Group, while 8 respondents from the Graphics Group claimed to be members of the Communications Society. Thus, while there is some redundancy in the survey data, it is also fairly limited. In general, the organizations noted in table 9 play an important role in the local labor market. They provide corporate representation of their members' interests; they offer training programs of various types; and they ensure that critical information about new technologies, skills, job opportunities, and so on, circulates rapidly through the local labor market. Recall from the earlier discussion that a significant proportion of respondents obtained their current jobs through organizational contacts.

Local labor markets, economic development

The labor market for workers in the multimedia and digital visual effects industry in southern California is highly distinctive in its overall structure. It has emerged in its present form by way of individuals filtering through a series of geographic and institutional staging points. For the most part, the market is made up of rising young professionals of both sexes, but with a very low representation of minority ethnic and racial groups. Workers in the industry are well educated and trained, and they earn notably high incomes, on average. While it is always possible that the survey method used in this article might have yielded a very one-sided view of the

Table 6. Highest level of education attained by respondents to the multimedia and digital visual effects industry questionnaire, southern California, 1996

Level of education	Communications Society	Graphics Group
Usable responses		
Number	166	155
Percent:		
High school	.6	3.2
Two-year college	7.2	12.3
Four-year college	38.6	49.0
Master's degree	45.2	27.7
Doctoral degree	8.4	7.7

Table 7. Educational majors of and institutions attended by respondents to the multimedia and digital visual effects industry questionnaire, southern California, 1996

Category	Communications Society	Graphics Group	Combined
Major			
Usable responses			
Number	160	149	309
Percent:			
Film, theater, TV, broadcasting	27.5	13.4	20.7
Graphics, computer graphics, and animation	3.8	25.5	14.2
Business	20.6	6.7	13.9
Engineering, mathematics, and science	6.3	19.5	12.6
Computer science	5.0	14.1	9.4
Fine arts and architecture	6.3	12.1	9.1
Social sciences	10.0	4.0	7.1
Liberal arts and languages	9.4	3.4	6.5
Education	5.0	.7	2.9
Law	4.4	.0	2.3
Medicine and health care	1.9	.7	1.3
Educational institution (southern California only)			
Usable responses			
Number	78	66	144
Percent:			
University of California, Los Angeles	34.6	33.3	34.0
University of Southern California	15.4	12.1	13.9
California State University, Northridge	7.7	10.6	9.9
Art Center Pasadena	.0	12.1	5.6
California State University, Fullerton	1.3	6.1	3.5
Pepperdine University	6.4	.0	3.5
California State University, Los Angeles	3.8	1.5	2.8
University of California, Santa Barbara	3.8	1.5	2.8
Loyola Marymount University	3.8	1.5	2.8
California Institute of the Arts	1.3	4.5	2.8
University of California, Irvine	3.8	.0	2.1
California Polytechnical Institute, San Luis Obispo	1.3	3.0	2.1
California State University, Long Beach	3.8	.0	2.1
San Diego State University	2.6	.0	1.4
Santa Monica College	.0	3.0	2.1
Brooks Institute	1.3	1.5	1.4
University of Redlands	1.3	1.5	1.4
California State University, San Bernardino	1.3	.0	.7
University of California, San Diego	1.3	.0	.7
California State University, Dominquez Hills	.0	1.5	.7
Whittier School of Law	1.3	.0	.7
Antioch University (Los Angeles)	1.3	.0	.7
California Institute of Technology	.0	1.5	.7
Riverside Community College	1.3	.0	.7
Saddleback College	.0	1.5	.7
Mesa Community College	.0	1.5	.7
Claremont Graduate School	.0	1.5	.7
Southwestern University	1.3	.0	.7

Table 8. Institutions (in southern California only) from which respondents to the multimedia and digital visual effects industry questionnaire have taken part-time courses in multimedia techniques, 1996

Institution	Communications Society	Graphics Group	Combined
Colleges, universities and professional schools			
University of California, Los Angeles, extension	36	57	93
Learning Tree University	3	4	7
Art Center Pasadena	4	1	5
University of California, Irvine	3	2	5
New Horizons	2	2	4
California State University, Long Beach, extension	0	4	4
Santa Monica College	0	4	4
Orange Coast College	0	2	2
The Learning Annex	0	2	2
Mount Sierra College	0	2	2
California State University, Northridge	2	0	2
University of Southern California	0	2	2
West Coast University	2	0	2
Miscellaneous colleges, universities, and professional schools	21	18	39
In-house training or product vendor programs			
Silicon Studio	14	4	18
Alias	5	0	5
AVID	0	2	2
Microsoft	0	2	2
Miscellaneous in-house training or product vendor programs	15	13	28
Professional associations (including user groups)			
American Film Institute	12	23	35
Association of Computing Machinery's Special Interest Group on Computer Graphics (Graphics Group)	9	0	9
International Interactive Communications Society (Communications Society)	2	5	7
Los Angeles MacIntosh Users' Group	2	3	5
Society of Motion Picture and Television Engineers	0	2	2
Women in Film	0	2	2
Directors' Guild of America	0	2	2
Miscellaneous professional associations	3	9	12

NOTE: Data are arranged by number of mentions.

labor market's general make-up, more casual data collected in firm interviews fully corroborate the broad conclusions offered here.

The local labor market that has grown up around the multimedia and digital visual effects industry in southern California is endowed with rich institutional infrastructures, and workers themselves appear to be extremely involved in job-enhancing extra work activities, including part-time training. Above all, they are joined together in many different crisscrossing networks of association. These networks allow workers to collectivize their individual experiences, knowledge, information, contacts, and so on, thus generating organizational frameworks that supplement general processes of worker socialization and job mobility. Such networks have been found in other industries and other regions to be an important basis of worker expertise and innovative activity, no matter whether it be semiconductor engineers in Silicon Valley,[11] or international finance workers in the City of London,[12] or even visual artists in New York.[13] In fact, local labor markets typically function not only as simple adjuncts to specialized regional economies, but also as critical sources of the agglomeration economies that keep those economies functioning as dynamic and tightly organized spatial units. When regional labor markets and economies work well, they ensure that trained and habituated workers with specific, frequently updated skills are constantly supplied to employment places.

The multimedia and digital visual effects industry is almost certain to become one of the driving forces behind the continued growth of urban cultural economies in future years, and Los Angeles—with its highly developed entertainment complex—is already a major center of the industry. In light of this, further research on specific forms of worker socialization and acculturation is needed, and nowhere more so than in the burgeoning cultural products industries, where subtle processes of habituation of the labor force are critical to overall economic success. □

Table 9. Affiliations of questionnaire respondents with professional associations, guilds, and unions, arranged by total number of mentions, southern California 1996

Association, guild, union	Communications Society	Graphics Group	Combined
Graphics Group	18	(1)	(1)
Communications Society	(1)	8	(1)
Society of Motion Picture and Television Engineers	10	9	19
International Alliance of Theatrical and Stage Employees (various locals)	0	14	14
Bar associations	10	0	10
Women in Film	7	0	7
Women in New Technologies	7	0	7
International Television Association	7	2	9
Institute of Electrical and Electronics Engineers	5	14	19
International Animated Film Society	2	6	8
Los Angeles MacIntosh Users' Group	2	3	5
Writers' Guild of America	5	0	5
Directors' Guild of America	3	0	3
Miscellaneous	130	155	285

[1] Not applicable.

Footnotes

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[1] Multimedia and digital visual effects is an emerging industry and is not officially designated under the Standard Industrial Classification system.

[2] *Making Digits Dance: Visual Effects and Animation Careers in the Entertainment Industry* (Los Angeles, The PMR Group, Inc., 1997).

[3] See Bureau of the Census, *County Business Patterns,* 1994 edition.

[4] A. J. Scott, "Territorial reproduction and transformation in a local labor market: the animated film workers of Los Angeles," *Environment and Planning D: Society and Space,* Vol. 2, 1984, pp. 277–307; A.J. Scott, "The spatial organization of a local labor market: employment and residential patterns in a cohort of engineering and scientific workers," *Growth and Change,* Vol. 23, 1992, pp. 94–115; and A. J. Scott, "Low-wage workers in a high technology manufacturing complex: the southern California electronics assembly industry," *Urban Studies,* Vol. 29, 1992, pp. 1231–46.

[5] A. J. Scott, *From Silicon Valley to Hollywood: Growth and Development of the Multimedia Industry in California,* Working Paper No. 13 (UCLA, Lewis Center for Regional Policy Studies, 1995); and A. J. Scott "The cultural economy of cities," *International Journal of Urban and Regional Research,* Vol. 21, 1997, pp. 323–39.

[6] Scott, "The spatial organization."

[7] This approach has been used previously with some success. See Scott, "Territorial reproduction and transformation," and Scott, "The spatial organization."

[8] The address data for individual establishments are from the list presented in the appendix to Scott, "*From Silicon Valley to Hollywood.*

[9] Detailed descriptions of typical occupations in the multimedia and digital visual effects industry can be found in Regan and Associates, *A Labor Market Analysis of the Interactive Digital Media Industry: Opportunities in Multimedia* (San Francisco, Regan and Associates, 1997); and Vivid Studios, *Careers in Multimedia* (Emeryville, CA, Ziff-David Press, 1995).

[10] M. S. Granovetter, *Getting a Job: A Study of Contacts and Careers* (Cambridge, MA, Harvard University Press, 1974).

[11] A. Saxenian, *Regional Advantage: Culture and Competition in Silicon Valley and Route 128* (Cambridge, MA, Harvard University, 1994).

[12] N. J. Thrift, "On the social and cultural determinants of international financial centers," in S. Corbridge, N. J. Thrift, and R. L. Martin, eds., *Money, Power, and Space* (Oxford, Blackwell, 1994).

[13] S. S. Montgomery and M. D. Robinson, "Visual artists in New York: what's special about person and place?" *Journal of Cultural Economics,* Vol. 17, 1993, pp. 17–39.

Experimental poverty measurement for the 1990s

Recently, a National Academy of Sciences Panel made recommendations for a revised poverty measure; when implemented in a test enviroment, these recommendations yield a poverty population that looks more like the general population, in that the poor are more likely to be white, to be married, and to have a family member in the labor force

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The last 30 years have seen fundamental social and economic changes in the United States. Today, there are more working mothers, families are smaller, there are wider varieties of goods and services, expectations about what it takes to meet one's needs are greater than in the past, and beliefs about what are necessities have changed. Geographic variations in housing and the increasing importance of government programs also have influenced families' appraisals of the value of their disposable incomes.[1] With these and related changes have come questions about whether the measures and data used to produce various economic statistics are still meaningful. Among the measures frequently criticized is that for poverty.

The most recent comprehensive examination of poverty measurement in the United States was conducted by the National Research Council of the National Academy of Sciences Panel on Poverty and Family Assistance in the early 1990s. In 1995, this Panel of scholars published its findings in a report entitled *Measuring Poverty: A New Approach*.[2] Included in the report are recommendations for a new poverty measure, along with examples of ways in which the recommendations might be implemented. According to the Panel, any new poverty measure should better reflect social and economic changes, and should be based on a level of family economic resources considered necessary to provide a minimally adequate standard of living, defined appropriately for the Nation.

The Panel's minimally adequate standard of living would include a basic needs commodity bundle (food, clothing, shelter, and utilities), plus a small additional amount to allow for other needs (such as household supplies, personal care, and nonwork-related transportation). Family economic resources would be defined as the sum of money income from all sources and near-money benefits from government transfer programs (such as food stamps and subsidized housing) that could be used to buy the commodities in the full needs bundle, less expenses that could not be used to buy these commodities.[3] If a family could not meet its needs for these commodities with its available economic resources, it would be considered poor. (See the box on pp. 53–55 for a summary of the general recommendations.)

In this article, we test the Panel's basic proposed procedure and examine additional Panel recommendations. We identify our poverty measures based on the additional recommendations as "experimental," in contrast to the official poverty measure and the measure published by the Panel. For purposes of this study, we take the initial recommendations as they are presented, and do not attempt to justify the Panel's recommended procedure or evaluate its advantages and disadvantages. The analysis that follows resulted from a joint project between the Bureau of the Census and the Bureau of Labor Statistics, the two U.S. Government statistical agencies that are most likely to be involved in producing any new poverty measure.[4]

See author identification on page 56.

Background

In order to produce poverty statistics, a poverty concept must be selected and resources defined. The concepts most often used for poverty measurement are identified as absolute, relative, or subjective.[5] An *absolute* measure reflects some standard below which, it is believed, basic needs cannot be met. Absolute measures often require a large number of judgments about an approved set of expenditures for the poor. The current U.S. official poverty threshold is assumed to reflect some absolute minimum.[6] A *relative* poverty concept is based on the relative position of households or individuals within a distribution (usually of income or expenditures) as a crucial determinant of poverty status. Such measures, which explicitly set the poverty threshold based on judgment, are most often used in Europe and for cross-national comparisons.[7] *Subjective* measures are based upon the notion that the opinions of people about their own situations (such as their feeling about the income level minimally necessary to make ends meet) should ultimately be the decisive factor in defining poverty. In Belgium, subjective poverty thresholds have been used as instruments to measure differences and changes in adequacy, although they are not used to measure poverty officially.[8]

The U.S. poverty thresholds, originally developed in 1963, were based on an explicit concept of need. Mollie Orshansky, of the Social Security Administration, derived what became known as the poverty thresholds from the Economy Food Plan (developed in 1961 by the U.S. Department of Agriculture) and data from the 1955 U.S. Department of Agriculture Household Food Consumption Survey. The Plan was adapted to the food patterns of lower income families, and was developed to provide a nutritionally balanced diet. (However, Gordon Fisher has observed that the Economy Food Plan was to be for "temporary or emergency use when funds are low."[9]) The dollar costs of the food plan were produced for families of different sizes and compositions. Minimum total living costs were computed by multiplying the dollar value of the minimum food plan by 3, because the average family of three or more persons spent about one-third of its average money income after taxes on food. This multiplier was based on the relationship between food expenditures and total after-tax money income of the entire population, as estimated using data from the 1955 Household Food Consumption Survey. The thresholds for families of other sizes were derived in a slightly different way.[10]

The Panel suggested that one of the reasons the Orshansky thresholds were adopted as official poverty measures is because of their relationship to other related measures at the time: the original 1963 threshold for a two-adult, two-child family was very close to one-half the median after-tax income for a four-person family, and to a subjective four-person family threshold derived from Gallup Poll data. Thus, the U.S. poverty measure, as originally conceived, did have components of absolute, relative, and subjective poverty measures.[11]

The Social Security Administration (SSA) began publishing poverty statistics in 1963 based on Orshansky's work. In 1965, the Office of Economic Opportunity adopted the SSA thresholds for statistical and program planning purposes. In August 1967, the Census Bureau took over publishing official annual statistics on the number and proportion of the poor; these measures were based on comparisons of the SSA thresholds with estimates of families' before-tax money income from the March Current Population Survey. In 1969, the U.S. Bureau of Budget (now the Office of Management and Budget) issued a statistical policy directive that gave the thresholds official status throughout the Federal Government.

As noted above, the current U.S. poverty threshold is considered an absolute threshold (although not originally developed as such) and is based on the cost of a minimum food diet, along with a multiplier for other expenses. Each year since 1963, when the United States officially began to produce poverty statistics, the same basic poverty concept has been used. However, a few changes have been introduced over time. The primary change each year is the updating of the thresholds to reflect price changes. Among the set of original thresholds, separate ones were produced for families headed by women and men, and for families living in farm and nonfarm areas. The male-female and farm-nonfarm distinctions were dropped in 1981; however, at the same time, the matrix of thresholds was extended to include families of nine persons or more rather than seven or more.[12]

The definition of poverty currently used in the United States is based on the comparison of inflation-adjusted thresholds to gross (pretax) annual money income. A family is identified as poor if its total annual gross money income is below its annual poverty threshold. The official definition of income for poverty measurement has not changed over time, but researchers at the Census Bureau have been experimenting with alternative measures of income for several years.[13] Such alternative income definitions have accounted for noncash benefits and the deduction of income taxes.

The Department of Health and Human Services uses the official poverty thresholds to produce annual poverty guidelines. These guidelines are obtained by smoothing the official thresholds for families of different size. The poverty guidelines are often used to determine the eligibility of families to participate in government programs designed to help those whose resources fall below some standard of need.[14]

In *Drawing the Line: Alternative Poverty Measures and Their Implications for Public Policy*, published in 1990, Patricia Ruggles addressed alternative concepts of poverty and methods for measuring poverty, and also proposed methods to update and revise the poverty threshold and resource

definitions.[15] The Joint Economic Committee held congressional hearings on these matters in the early 1990's,[16] in response to Ruggles' book and her related activities on the Committee staff. As a result of those hearings, the Panel on Poverty and Family Assistance, chaired by Robert T. Michael, was given the responsibility to conduct the review. As noted earlier, the Panel issued its final report, entitled *Measuring Poverty: A New Approach,* in 1995.[17]

Highlights of the Panel report

As did Ruggles, the Panel recommended revising the current poverty measure to reflect trends in poverty over time and differences in the incidence of poverty among different demographic groups. The new measure would retain the current notion of poverty as reflecting material deprivation; however, a revised set of thresholds and a revised definition of resources would be used to identify the poor. The revised thresholds and resource definitions would reflect social and economic changes. This is in contrast to the method currently followed for updating the official poverty thresholds, which allows only for changes in prices, and not for changes in consumption patterns over time. The Panel's aim was to propose a *procedure* to follow. Rather than recommending an absolute, relative, or subjective measure, the Panel proposed a *hybrid* poverty measure that includes aspects of both the absolute (budget-based) and relative concepts.[18]

In general, the Panel's recommendations addressed eight major tasks[19]: (1) adopting a new poverty measure; (2) setting and updating the poverty threshold; (3) adjusting the threshold for family type and geographic differences; (4) defining family resources; (5) identifying needed data; (6) highlighting other issues related to poverty measurement; (7) relating poverty measurement to assistance programs; and (8) linking States' needs to the Panel's proposed measure. The basic criteria for developing the poverty measure are that it should be:

- understandable and broadly acceptable to the public;
- statistically defensible (for example, internally consistent); and
- operationally feasible.[20]

The Panel used recent data and applied results from scientific studies in developing its recommendations. However, Panel members did make subjective decisions at various times in the process.[21]

Panel procedures and findings

Defining the thresholds. With reference to the poverty thresholds, the Panel stated generally that[22]:

- The poverty thresholds should represent a budget for food, clothing, shelter (including utilities), and a small additional amount for other needs (such as household supplies, personal care, and nonwork-related transportation).
- A threshold for a reference family type should be developed using actual Consumer Expenditure Survey data and updated annually to reflect changes in expenditures on food, clothing, and shelter over the previous 3 years.
- The reference family threshold should be adjusted to reflect the needs of different family types and differences in housing costs among geographic areas.

Weighted expenditure data from the 1989–91 Consumer Expenditure Interview Survey were used to produce the poverty thresholds presented in the Panel's report. Expenditures for a basic bundle of commodities composed of food, clothing, shelter, and utilities[23] were obtained from the expenditure survey data for a reference family type, defined to include two adults and two children.[24] The Panel criteria called for a reference family to "fall near the center of the family size distribution rather than at one of the extremes...also, it is preferable for the reference family to be one that accounts for a relatively large proportion of the population because its spending patterns observed in a sample survey will be the basis for the poverty threshold...."[25] The two-adult, two-child family met these criteria.

Multipliers were applied to the basic bundle to add a small amount for other needs, such as housekeeping supplies, personal care, and nonwork-related transportation. Two sets of thresholds were produced, with one allowing for greater "other needs" than the other. Thresholds for additional family types were derived by applying an equivalence scale to reflect differences in family composition and needs. These thresholds were then adjusted to account for differences in the cost of housing in metropolitan and nonmetropolitan areas in the country, using data from the 1990 census. The Panel used a modified version of the Department of Housing and Urban Development methodology for developing fair market rents to produce interarea housing price index values. Index values were constructed for metropolitan areas in six population size categories, and for nonmetropolitan areas (not distinguished by size) in each of the nine census regions.[26] (See appendix A.)

Expenditures were defined as the transaction costs, including excise and sales taxes, for those commodities acquired during the interview period. They included outlays for gifts, but excluded the value of purchases or portions of purchases directly attributable to business purposes. Also excluded were periodic credit or installment payments on commodities already acquired. Expenditures for vehicle purchases included the net outlays (purchase price minus trade-in value) on new and used cars and trucks, and expenditures for other vehicles.

For owned housing, neither the purchase price of the housing nor the mortgage principal payment was included in expenditures; however, mortgage interest and related charges were included. (The Panel noted that this definition of the shelter costs for homeowners was used for processing convenience.[27])

The Panel stated that the "...food, clothing, and shelter [including utilities] component of the reference family poverty threshold under the proposed concept must be expressed as a percentage of median expenditures on these categories."[28] This requirement reflects the *relative* component of the hybrid poverty measure. The Panel's procedure for creating a time series of thresholds involves picking a percentage of median expenditures for food, clothing, and shelter (the basic bundle) and a multiplier. The multiplier would be applied to the food, clothing, and shelter (including utilities) component of the poverty threshold so as to allow a small fraction for other needed expenditures. With this information, a base-year threshold would be established first, and the same percentage and multiplier would then be used to produce the thresholds for all other years. The only requirement for each year would be the production of median expenditures for food, clothing, shelter, and utilities.[29] The intent underlying this procedure was to drive the change in the thresholds by changes in median spending on food, clothing, shelter, and utilities, and not by changes below the median.[30] The Panel recommended that the thresholds be updated annually, using an average of the most recent 3 years of expenditure survey data to produce the medians. The 3-year average approach was devised to increase the sample size and to smooth out year-to-year changes in the thresholds; however, this approach also produces thresholds that lag behind changes in real consumption.[31]

The Panel based its analyses on data from consumer units[32] participating in the Consumer Expenditure Survey in 1989–91. (See appendix B for a description of the expenditure survey.) Each quarter, data for approximately 5,000 consumer units are are obtained in the Interview portion of the expenditure survey. Based on the 1989–91 survey data, about 9 percent of all consumer units interviewed have the characteristics of the Panel's reference family—that is, they are two-adult, two-child families. The Panel assumed that the quarterly interviews are independent, and produced annual expenditures by multiplying each consumer unit's record of expenditures by 4. All expenditures were converted to 1992 constant U.S. dollars. For example, if the collection quarter of the data occurred sometime during 1989, the 1989 expenditures were updated using the change in overall prices between 1989 and 1992.

The Panel ranked consumer units based on expenditures for the basic bundle, and placed each consumer unit into 1 of 20 equal groups, or vingtiles,[33] for which means for the basic bundle and percentages of the median were produced. For example, consumer units between the 2.5th percentile and the 7.5th percentile (based on the weighted sample sorted by the sum of expenditures on food, clothing, shelter, and utilities) were used to represent the 5th percentile; those between the 47.5th and 52.5th percentiles were used to represent the median, or 50th percentile. The mean expenditures for each of the vingtiles were divided by the mean expenditures at the computed median to produce the percentages of the median. The Panel used the means of the vingtiles for their estimates, rather than the percentile values for the consumer unit at each vingtile, thereby increasing the sample size for each vingtile and the probability that the data were consistent over time. (We use this same procedure to construct our experimental poverty measures.)

As noted earlier, multipliers were applied to the value of the designated basic bundle (specified as some percentage of the median of the basic bundle) to account for the additional costs of other needed commodities. The two bundles considered by the Panel reflect expenditures for: (1) the basic bundle plus those for personal care and one-half of transportation[34]; and (2) the basic bundle plus personal care, one-half of transportation, education, and reading materials costs.[35] In its report, the Panel stated that "we arbitrarily chose to exclude one-half of transportation costs because the Interview Survey does not distinguish between work expenses, which we propose to deduct from resources, and personal transportation for errands, vacations, etc."[36] This allocation is consistent with other studies.[37]

The Panel's determination of what to include in the additional amount was constrained by the availability of data from the Interview portion of the expenditure survey. (Some personal care items and household supplies, which would seem natural candidates for inclusion in the multiplier bundle, are available only from another portion of the expenditure survey, known as the Diary survey.) However, it is also important to note that the Panel did not intend to engage in a detailed budget-building exercise; it simply wanted to try out a couple of reasonable multipliers to get a feel for a reasonable range for a small multiplier applied to a basic bundle.[38] Other commodity bundles could have been assumed.

The Panel concluded from a review of its tabulations that a reasonable range for the multiplier was 1.15 to 1.25, which allowed for a poverty threshold that ranged from $13,700 to $15,900 (in 1992 dollars, rounded). The lower value is 78 percent of median expenditures for the basic bundle (corresponding to the 30th percentile) times 1.15, and the upper value is 83 percent of the median for the basic bundle (corresponding to the 35th percentile) times 1.25. The Panel chose its multipliers to correspond with those at or below the median level of expenditures for the basic bundle. This range of multipliers compared favorably with those estimated in other studies,[39] which range from 1.14 to 1.30. (The calculation method is described in appendix C, using our definitions of

expenditures as an example.) The general formula for deriving the proposed reference family threshold is

$$T = \left[\frac{(M_1 * P_1 E_m) + (M_2 * P_2 E_m)}{2} \right] * \text{housing index} \quad (1)$$

where T = the reference family poverty threshold;
M_1 = the multiplier for a smaller additional amount;
M_2 = the multiplier for a larger additional amount;
P_1 = a lower percentage of expenditures;
P_2 = a higher percentage of expenditures; and
E_m = median expenditures for the basic bundle of food, clothing, shelter, and utilities.

Next, the thresholds were adjusted to reflect geographic differences in the price of housing.[40] For this purpose, the Panel used interarea housing price indexes, calculated from 1990 census data on gross rent for apartments with specified characteristics, and adjusted to reflect the share of housing in the proposed poverty budget.[41]

Equivalence scale adjustments were then made to the reference family's threshold to account for the differing needs of adults and children and the economies of scale of living in larger families. After evaluating the equivalence scale implicit in the poverty thresholds and several forms of the thresholds, the Panel recommended a scale of the following type:

$$\text{scale value} = (A + pK)^f \quad (2)$$

where A = the number of adults in the family;
K = the number of children, each of whom is treated as a proportion (p) of an adult;
p = the weight assigned to each child relative to each adult; and
f = the scale economy factor.

Specifically, the Panel recommended that p be set at 0.7, such that the needs of a child are treated as 70 percent of those of an adult, and that the scale economy factor, f, be set in the range of 0.65 to 0.75. The values of the resulting scale are consistent with the Rothbarth scales reported elsewhere by David M. Betson and Robert T. Michael.[42] The equivalence scale implicit in the current poverty thresholds has been criticized for the way in which it varies across family size, and for the distinction it makes between elderly and nonelderly families.[43] The variation across family size is due to irregularities in the economies of scale. Use of the scales proposed by the Panel smoothes out these irregularities while producing thresholds that are reasonably close to the official thresholds; hence the Panel's assertion that its proposed method is the "most defensible of existing methods."[44] Equivalence scales implied by the official poverty threshold and the two scales proposed by the Panel are presented in table 1.[45] The scales recommended by the Panel improve on the current official scale but do not "represent a great departure from the current implicit scale for particular population groups."[46]

The Panel produced three sets of thresholds using (1) a $13,175 reference family threshold to keep the overall poverty rate at 14.5 percent; (2) a $14,800 reference family threshold and a scale economy factor of 0.75; and (3) a $14,800 reference family threshold and a scale economy factor of 0.65. The $14,800 threshold is the midpoint of the range noted above—$13,700–$15,900, based on rounding—that the Panel suggested as reasonable for the thresholds in 1992.

Defining resources. As noted earlier, under the definition of poverty currently used in this country, a family is defined as poor if its resources, defined as its gross (pretax) annual money income, are below the annual poverty threshold. In making recommendations for a redefined U.S. poverty measure, the Panel advocated sweeping changes to the definition of

Table 1. Current and alternative equivalence scales for families of selected types, expressed relative to a value of 1.00 for a married couple with two children

Family type	Implicit in current official thresholds[1]	0.65 scale economy factor	0.70 scale economy factor	0.75 scale economy factor
One adult[2]	0.513	0.451	0.425	0.399
Plus one child	.680	.637	.616	.595
Plus two children	.794	.797	.784	.770
Plus three children	1.003	.942	.937	.933
Plus four children	1.159	1.075	1.081	1.087
Plus five children	1.293	1.200	1.217	1.234
Married couple	.660	.708	.690	.672
Plus one child	.794	.861	.851	.841
Plus two children	1.000	1.000	1.000	1.000
Plus three children	1.177	1.129	1.140	1.151
Plus four children	1.318	1.251	1.273	1.295
Plus five children	1.476	1.367	1.400	1.434

[1] The thresholds for single adults or unrelated individuals and for two-adult families are those for units with the householders under age 65.

[2] For the one-adult unit, includes people living alone and with others in a household not related to them.

SOURCE: Connie F. Citro and Robert T. Michael, eds., *Measuring Poverty: A New Approach* (Washington, National Academy Press, 1995), table 3–4, p. 181; and the authors' own calculations. The Panel proposed that the scale be set in the range of 0.65 to 0.75. A 0.70 scale economy factor is used in this article.

resources used to determine poverty status. In deciding how to measure resources, the Panel noted that "researchers argue that it is preferable, for a combination of theoretical and empirical reasons, to look at what families actually consume."[47] The Panel carefully evaluated this concept,[48] and concluded that "the measurement of poverty in the United States must continue, at least for some years, to be based on an income definition of resources . . . we urge work on improving the Consumer Expenditure (CE) Survey so that it would be possible to consider seriously the use of consumption- or expenditure-based definition of family resources for measuring poverty in the future."[49] Thus, the Panel recommended that resources be defined as the sum of money income from all sources, together with the value of near-money benefits, minus expenses that cannot be used to buy these goods and services. The new measure would be calculated as follows:[50]

- estimate gross money income from all public and private sources for a family of related individuals (which is income as defined in the current measure);
- add the value of in-kind government subsidies (such as food stamps, public housing, rent subsidies, and school lunches);
- subtract taxes paid (Federal, State, and local income taxes, and Social Security payroll (FICA) taxes);
- add the value of the refundable Earned Income Tax Credit received;
- subtract child support paid;[51]
- for each working adult, subtract a flat amount per week worked (adjusted annually for inflation and not to exceed earnings) to account for work-related transportation and miscellaneous expenses;
- for families in which there is no nonworking parent, subtract actual child care costs per week worked, not to exceed the earnings of the parent with the lower earnings or a cap that is adjusted annually for inflation; and
- subtract medical out-of-pocket expenditures (including health insurance premiums).

In making its resource recommendations, the Panel strove to ensure consistency between resources and needs (as defined in the previous section to include the costs of food, clothing, shelter, utilities, and a small additional amount for other needed consumption). Thus, for example, the value of medical assistance is not included in the recommended resource measure because medical needs are not included in the recommended needs measure. The recommendation not to include the value of medical assistance is perhaps the most controversial of the Panel's proposals with regard to resources; the effect of this recommendation on the composition of poverty will have to be examined, because medical needs and benefits are by far the most important component excluded from the Panel's redefined measure. A question remains with respect to the economic resources of homeowners with low, or no, mortage payments. The Panel did not believe that data available at the time of its research were adequate to produce values for these economic resources.[52]

The current poverty measure counts child support payments as income to recipient families, but does not subtract such payments from the income of the payers. The Panel proposed that child support payments be treated consistently—added to recipients' income and subtracted from the payers' income. However, child support payments were not subtracted in the Panel's report or in this article, because the necessary information is not in the CPS data set. However, the Panel did examine the likely effect of such a subtraction on the poverty rate using panel data from the 1990 Survey of Income and Program Participation (SIPP). (See appendix B for a description of the SIPP.) The Panel's results suggested that the overall poverty rate would increase 0.3 to 0.5 percentage point if child support were subtracted from the payers' income.[53]

Because no one data source included information on all of the resource variables, imputed data had to be used. The basic data used by the Panel to define resources were from public use tapes developed from the March 1993 Supplement to the Current Population Survey; data refer to 1992. (See appendix B for a description of the Current Population Survey.) The values of in-kind benefits (food stamps, school lunches, and public and subsidized housing) and taxes (Federal and State income taxes and Social Security payroll taxes) were from an enhanced file prepared by the Census Bureau. The tax imputations include the refundable earned income tax credit, which was added to the resources for all eligible households.[54] The Census Bureau imputes the value of the in-kind benefits using an experimental market value approach.[55] The total value of food stamps, less the money spent to purchase the food stamps, is the value added to resources.

Out-of-pocket medical expenditures were imputed using tabulations provided by the Agency for Health Care Policy and Research based on data from the 1987 National Medical Expenditure Survey (NMES). (See appendix B for a description of NMES.) The data were aged to represent the 1992 population. The value of out-of-pocket medical care expenses was imputed separately for the elderly (head was 65 years of age or older) and the nonelderly (head was less than 65 years of age). The explanatory variables in the model for families headed by a nonelderly person included whether a family had health insurance or not, family size, race of head, and annual income. The explanatory variables included in the elderly model were age of head (under 75 years, 75 years and older), family size, and annual income. The Panel assumed that families that reported receiving medicaid would have no out-of-pocket medical expenditures. It randomly designated a fraction of the remaining families to have some out-of-pocket

medical expenditures. Matches were made using age and health insurance information from both the CPS and NMES.[56]

Child care expenses related to one's working and other work-related expenses were imputed using data from the SIPP and regression analysis. Child care expenses were based on data collected in a 1990 SIPP panel module, while other work-related expenses were based on data collected in a 1987 module. For the year 1992, the Panel (as did we) subtracted an imputed amount for annual child care expenses for families headed by a single parent and for families with a secondary worker in a two-earner family. The annual amount imputed could not exceed the earnings of the parent with the lower earnings or the value of the ceiling on eligible expenses for the dependent care tax credit of $2,400 for one child and $4,800 for two or more children.[57] Other work-related expenses were imputed for each worker aged 18 and older for each week worked. For 1992, an annual amount of $750 for a 52-week work year was deducted per earner; this is equivalent to $14.42 per week worked.

The Panel reported median gross money income for the two-adult, two-child family to be $43,387 in 1992 with imputed deductions of $5,894.[58]

Extending the research

In this section, we describe our replication of the multipliers produced by the Panel, and then define the experimental poverty thresholds and family resources that we used to evaluate the impact of implementing some of the Panel's recommendations. Minor differences between the Panel's published multipliers and the replicated multipliers are discussed, as are differences in the definitions of thresholds and resources used.

Replication of multipliers. Using the same definition of expenditures as did the Panel, we first attempt to replicate the multipliers that the Panel presented in table 2–6 of its report using expenditure survey data from 1989–91. Then, we assess the stability of the thresholds by examining the expenditures for the same basic bundle of commodities using data from 1992–94.

The reference family's mean expenditures for the basic bundle, composed of food, clothing, shelter,[59] and utilities, are presented by vingtile in table 2. The means presented by the Panel using the 1989–91 data and our means using data for the same period are quite close, but ours are more often slightly higher.[60] At the 30th percentile, the means are only $7 different, while at the 35th, they are about $80 different. The percentile means and the percentages of the median produced by the Panel and through our replication reveal almost identical results for 1992 using data from 1989–91. In several cases, the percentage for each vingtile is slightly higher using the 1992–94 data (means are presented in constant 1992 dollars); however, the differences are generally quite small when the more recent data are used.

Table 2. A comparison of the Panel's published expenditures, replicated expenditures, and expenditures using 1992–94 data

[Expenditures in constant 1992 dollars]

Percentile	Basic bundle 1 expenditures			Percent of median		
	Published, 1989–91	Replicated, 1989–91	1992–94	Published, 1989–91	Replicated, 1989–91	1992–94
5th	$7,041	$7,065	$7,071	45.9	46.2	46.1
10th	8,374	8,304	8,544	54.6	54.3	55.7
15th	9,275	9,297	9,594	60.4	60.8	62.5
20th	10,188	10,213	10,512	66.4	66.8	68.5
25th	11,100	11,118	11,325	72.3	72.7	73.8
30th	11,950	11,957	12,051	77.9	78.2	78.6
35th	12,719	12,796	12,798	82.9	83.7	83.4
40th	13,575	13,582	13,595	88.5	88.8	88.6
45th	14,389	14,417	14,471	93.8	94.3	94.3
50th	15,344	15,297	15,340	100.0	100.0	100.0
55th	16,282	16,292	16,230	106.1	106.5	105.8
60th	17,277	17,286	17,303	112.6	113.0	112.8
65th	18,369	18,394	18,458	119.7	120.3	120.3
70th	19,627	19,605	19,731	127.9	128.2	128.6
75th	20,989	20,911	21,250	136.8	136.7	138.5
80th	22,521	22,453	23,066	146.8	146.8	150.4
85th	24,594	24,613	25,375	160.3	160.9	165.4
90th	27,580	27,536	28,487	179.7	180.0	185.7
95th	34,094	34,345	35,456	222.2	224.5	231.1
100th	114,942	52,207	56,383	749.1	341.3	367.6

NOTE: Basic Bundle 1 = Food + Clothing + Shelter + Utilities.
Data are percentile values of expenditures by two-adult, two-child families on the Panel's basic bundle. The published values are from Connie F. Citro and Robert T. Michael, eds., *Measuring Poverty: A New Approach* (Washington, National Academy Press, 1995), table 2–6. (See appendix C for method used to calculate multipliers.)

Table 3. Multiplier of a smaller bundle (R1) compared with that of a larger bundle (R2)

Percentile	R1			R2		
	Published, 1989–91	Replicated, 1989–91	1992–94	Published, 1989–91	Replicated. 1989–91	1992–94
5th	1.18	1.20	1.18	1.20	1.21	1.27
10th	1.22	1.21	1.19	1.25	1.23	1.21
15th	1.21	1.21	1.20	1.23	1.24	1.22
20th	1.18	1.19	1.18	1.19	1.22	1.22
25th	1.18	1.18	1.18	1.20	1.20	1.21
30th	1.19	1.19	1.17	1.23	1.22	1.21
35th	1.20	1.18	1.17	1.26	1.21	1.20
40th	1.15	1.19	1.17	1.18	1.22	1.20
45th	1.16	1.17	1.16	1.20	1.20	1.19
50th	1.14	1.16	1.17	1.21	1.20	1.20
55th	1.17	1.16	1.15	1.17	1.20	1.20
60th	1.15	1.15	1.16	1.19	1.18	1.18
65th	1.13	1.15	1.16	1.18	1.18	1.20
70th	1.15	1.14	1.15	1.16	1.18	1.19
75th	1.15	1.16	1.14	1.20	1.19	1.18
80th	1.15	1.15	1.14	1.18	1.18	1.17
85th	1.13	1.14	1.14	1.16	1.17	1.18
90th	1.14	1.14	1.14	1.17	1.17	1.18
95th	1.12	1.13	1.13	1.16	1.16	1.17
100th	1.09	1.11	1.10	1.13	1.14	1.13

NOTE: Basic Bundle 1 = Food + Clothing + Shelter + Utilities.

R1 = 1 + 1/2* Transportation share + Personal care share.

R2 = 1 + 1/2* Transportation share + Personal care share + Education share + Reading materials share.

The published values are from Connie F. Citro and Robert T. Michael, eds., *Measuring Poverty: A New Approach* (Washington, National Academy Press, 1995), table 2–6. (See appendix C for method used to calculate multipliers.)

Table 3 shows the multipliers produced by the Panel based on the 1989–91 data, our replication results, and the multipliers based on the 1992–94 data. In brief, the expenditures for the basic bundle are used in combination with expenditures for larger bundles to estimate the multipliers at each vingtile for each year. As noted earlier, one of the larger bundles allows for expenditures on transportation and personal care, while the other allows for these expenditures plus those for education and reading. For the replication and the 1992–94 comparison, transportation expenditures are defined to include the net purchase price of new and used vehicles, as are the expenditures produced for table 2–6 of the Panel report.

In table 3, the three columns identified as R1 refer to the multipliers based on the smaller of the larger bundles, while the R2 columns refer to the multipliers derived when the largest bundle is assumed. As with the means of the basic bundles, the Panel's and our replication multipliers appear to be quite similar. For the 30th and 35th percentiles, the multipliers are within 0.02 point of each other. (1.19 and 1.20 for the Panel and 1.19 and 1.18 in our replication). The multipliers using the 1992–94 data also differ little.

Differences between the Panel's published report and our replicated results for 1989–91 are due to corrections and improvements in the expenditure survey data base. For example, summary expenditure variables back to 1980, for which consistent definitions across time are used, have recently been added to that data base. Minor discrepancies between the Panel's results and our estimates may also exist because of the speed and volume of the data analysis that BLS originally completed for the Panel. Based on our comparison of the Panel's percentile means and percentage median results with our replication, we feel fairly confident that we are correctly following the procedure used by the Panel.

Defining the thresholds. In this section, we review results we obtained following two of the Panel's suggestions[61] that were not implemented in its report because of time considerations. These suggestions deal with the ways in which shelter costs for homeowners are incorporated in the thresholds and transportation expenditures are defined. We also examine the sensitivity of the Panel's assumptions with respect to the multipliers and to the "economies of scale" factor assumed for larger households. We take an incremental approach in producing our experimental thresholds.

First, we produce thresholds using the same multipliers (1.15 and 1.25) and the same percentages of median expenditures (0.78 and 0.83) that the Panel used, but we apply a different equivalence scale factor. This same averaging procedure is used to construct the other experimental thresholds described below. To simplify the analysis, we use an economies-of-scale factor of 0.7 to obtain the thresholds for family types other than the one consisting of two adults and two chil-

dren;[62] the Panel produced thresholds using scale factors of both 0.65 and 0.75.[63] Making this adjustment results in thresholds that we refer to as "Bundle 1 thresholds."

Second, we follow the Panel's recommendation to replace the shelter costs for homeowners with a rental equivalence value that accounts for the flow of services from owner-occupied housing. The same multipliers and scale factor are applied as for "Bundle 1 thresholds." We refer to this second set of thresholds as "Bundle 2 thresholds."

Third, we produce thresholds that are based on the estimated multipliers at the 30th and 35th mean percentiles (these correspond to 78 and 83 percent of the median), rather than the multipliers of 1.15 and 1.25 assumed by the Panel in the report. The range for the estimated multipliers is slightly narrower than the range proposed by the Panel, but the estimated multipliers are still within the suggested range. To estimate the multipliers used here, we took an outlays approach to transportation expenditures, rather than the Panel's original approach of including the total purchase price of a vehicle.[64] Thresholds allowing for expenditures for both the larger and smaller bundles are produced. This set of thresholds is referred to as "Multiplier A1 thresholds" and "Multiplier A2 thresholds." A1 refers to the smaller of the two larger bundles, and A2 to the larger of the two. Shelter costs are defined as for the Bundle 1 experimental thresholds.

Fourth, we build upon the last set of thresholds but define the shelter costs for homeowners to be their rental equivalence; outlays for transportation expenditures again are assumed (as for Multiplier A1 and A2 thresholds). The estimated multipliers based on this bundle of commodities are applied, still using the 78th and 83rd percentage of the median approach. The same scale factor (0.7) is used. We refer to this last set of thresholds as "Multiplier A4 thresholds" and "Multiplier A5 thresholds." Here, A4 refers to the smaller of the two bundles, and A5 refers to the larger of the two.

Each set of thresholds is constructed for 1990 through 1995, using expenditure data from the Interview portion of the 1987–94 Consumer Expenditure Survey. The 3-year moving average approach, with CPI-U adjustment to account for price changes over time, is followed. For each set of thresholds, the

Table 4. Official poverty thresholds for selected family types, and thresholds based on basic bundles 1 and 2, 1990–95

[In current dollars for each year]

Threshold	1990[2]	1991[2]	1992[2]	1993[2]	1994[2]	1995[2]
Official poverty threshold						
Singles	$6,652	$6,932	$7,143	$7,363	$7,547	$7,763
Married couple	8,509	8,865	9,137	9,414	9,661	9,933
Plus one child	10,520	10,963	11,293	11,631	11,929	12,267
Plus two children	13,254	13,812	14,228	14,654	15,029	15,455
Plus three children	15,598	16,254	16,743	17,245	17,686	18,187
Plus four children	17,464	18,199	18,747	19,308	19,802	20,364
Plus five children	19,561	20,384	20,998	21,626	22,180	22,809
Bundle 1 threshold[3]						
Singles	5,847	6,089	6,282	6,480	6,638	6,843
Married couple	9,498	9,892	10,205	10,527	10,783	11,117
Plus one child	11,719	12,204	12,591	12,988	13,304	13,715
Plus two children	13,771	14,341	14,796	15,262	15,634	16,117
Plus three children	15,699	16,349	16,868	17,399	17,823	18,374
Plus four children	17,531	18,256	18,836	19,429	19,902	20,517
Plus five children	19,283	20,082	20,719	21,371	21,892	22,569
Bundle 2 threshold[3]						
Singles	6,059	6,298	6,436	6,573	6,693	7,382
Married couple	10,191	10,592	10,823	11,055	11,256	11,993
Plus one child	12,763	13,266	13,556	13,845	14,097	14,796
Plus two children	15,172	15,770	16,114	16,458	16,758	17,387
Plus three children	17,459	18,147	18,543	18,939	19,284	19,822
Plus four children	19,650	20,425	20,870	21,316	21,704	22,134
Plus five children	21,762	22,620	23,114	23,607	24,037	24,347

[1] Thresholds derived from calculation: ((1.15*mean of amount that is 78 percent of the basic bundle expenditures median)+ (1.25 * mean of amount that is 83 percent of the basic bundle expenditures median))/2; equivalence scale =$(A+.7K)^{0.7}$

[2] For each year, the prior 3 years of expenditure survey data were updated to the current year, using the CPI-U , to produce the thresholds for the current year. For example, to produce the thresholds for 1992, 1989–91 expenditure survey data were updated to 1992 dollars using the change in the CPI from 1989, 1990, and 1991 to 1992, for each year, respectively.

[3] Bundle 1 and 2 thresholds based on basic Bundles 1 and 2 respectively.

Basic Bundle 1 = Food + Clothing + Shelter + Utilities.

Homeowners' shelter expenditures include mortgage interest and related charges but not reductions in mortgage principals.

Basic Bundle 2 = Food + Clothing + Shelter + Utilities.

Here homeowners' shelter expenditures are defined as the rental equivalence value reported when the respondent is asked for the amount for which the house could be rented.

basic bundle of expenditures for the reference two-adult, two-child family is calculated. The basic bundle definition changes only with respect to shelter. The alternative transportation expenditure definition affects the thresholds through the multipliers. As before, the basic bundle is used to rank families, and then to divide the families into vingtiles. The resulting means and estimated multipliers are used in conjunction with the scale factor to produce the thresholds.

In the present study, we assess the impact of the Panel's recommendations primarily by examining poverty rates resulting from the use of the different sets of thresholds. However, for illustrative purposes, we present Bundle 1 and Bundle 2 thresholds for singles and couples with and without children in table 4, to demonstrate the impact on the thresholds of introducing one of the Panel's recommendations. Over the 1990–95 period, the two-adult, two-child thresholds increase by 17.0 and 14.6 percent for Bundles 1 and 2, respectively, in line with the 16.6-percent increase in the official threshold. For each year and family group, the thresholds are higher when rental equivalence (reflected in Bundle 2) is used as the shelter expenditure for homeowners. However, increases in the official threshold, the Panel's thresholds, and our experimental thresholds are similar over the limited period covered. The thresholds presented in table 4 are not adjusted for geographic differences in housing costs; however, interarea adjustments in the price of housing are made for each set of experimental thresholds used to produce the poverty rates presented in table 5.

Defining resources. The resource measure used for this analysis is very similar to the one presented in

Table 5. Poverty rates of persons by selected characteristics, 1990–95

[In percent]

Characteristic and year	Thresholds[1]		
	Official	Bundle 1	Bundle 2
Age			
All ages:			
1990	13.5	18.3	21.7
1991	14.2	19.1	22.4
1992	14.8	19.9	23.1
1993	15.1	20.6	23.4
1994	14.6	19.2	21.7
1995	13.8	18.4	21.1
Children (under 18 years):			
1990	20.7	25.4	30.0
1991	21.8	26.6	30.8
1992	22.4	27.1	31.0
1993	22.7	27.9	31.4
1994	21.8	25.8	28.9
1995	20.8	24.3	27.7
Persons aged 18 to 64 years:			
1990	10.8	14.9	17.7
1991	11.4	15.6	18.4
1992	11.9	16.3	19.1
1993	12.4	17.1	19.4
1994	11.9	16.0	18.0
1995	11.4	15.4	17.7
Elderly (over 64 years):			
1990	12.2	20.2	24.3
1991	12.4	20.5	24.8
1992	12.9	22.5	26.4
1993	12.2	22.5	25.7
1994	11.7	21.0	24.0
1995	10.5	20.9	24.2
Race and ethnicity			
White:			
1990	10.7	15.7	18.9
1991	11.3	16.3	19.3
1992	11.9	17.1	20.1
1993	12.2	17.7	20.2
1994	11.7	16.7	19.0
1995	11.2	16.3	18.7
Black:			
1990	31.9	34.8	39.6
1991	32.7	35.9	41.1
1992	33.4	37.1	41.3
1993	33.1	37.4	42.0
1994	30.6	32.6	35.8
1995	29.3	30.8	35.3
Hispanic origin[2]:			
1990	28.1	40.3	46.4
1991	28.7	41.6	47.0
1992	29.6	41.5	47.8
1993	30.6	43.2	47.8
1994	30.7	41.7	45.9
1995	30.3	41.0	45.8
Work experience			
Worker in the family:			
1990	8.9	13.9	17.1
1991	9.3	14.5	17.5
1992	9.7	15.0	17.9
1993	9.9	15.6	18.2
1994	9.6	14.4	16.6
1995	9.5	13.9	16.5
Family type			
Married couple:			
1990	6.9	12.2	15.3
1991	7.3	12.9	15.7
1992	7.7	13.7	16.5

Table 5. Continued—Poverty rates by selected characteristics, 1990–95

[In percent]

Characteristic and year	Thresholds[1]		
	Official	Bundle 1	Bundle 2
1993	8.0	14.2	16.6
1994	7.4	13.1	15.2
1995	6.8	12.4	14.7
Female householder:			
1990	37.2	41.6	47.1
1991	39.7	43.6	48.7
1992	39.0	42.8	47.1
1993	38.7	43.5	48.0
1994	38.6	40.8	44.5
1995	35.5	38.8	42.9

[1] Official thresholds for each year are used. Budget 1 and Budget 2 thresholds derived from the calculation:

((1.15*mean of amount that is 78 percent of basic bundle expenditures median)+(1.25 * mean of amount that is 83 percent of basic bundle expenditures median))/2; equivalence scale $=(A+.7K)^{0.7}$.

Bundle 1 and 2 thresholds are based on basic Bundles 1 and 2, respectively.

Basic Bundle 1 = Food + Clothing + Shelter + Utilities.

Homeowners' shelter expenditures include mortgage interest and related charges, but not reductions in mortgage principals.

Basic Bundle 2 = Food + Clothing + Shelter + Utilities.

Here, homeowners' shelter expenditures are defined as the rental equivalence value reported when the respondent is asked for the amount for which the house could be rented.

[2] May be of any race.

the Panel report. For each year of data, 1990–1995, we use the corresponding March CPS file as the base to define resources. The values of in-kind government subsidies and taxes paid, imputed by the Census Bureau and added to the March CPS microdata for each year, are employed in the calculation of resources. Work-related expenses (including child care expenses) and medical out-of-pocket expenses are imputed using the methods employed in the Panel's report, with adjustments for price changes.

A few measurement notes and caveats with respect to the resource definition and data should be mentioned at this point. In showing the effect of the recommended measure on poverty, the Panel report made imputations for work-related expenses, child care expenses, and out-of-pocket medical expenses; these have been highlighted earlier. We made these same imputations for 1992. To extend the estimates back to 1990 and forward to 1995, we use the same methods as those employed by the Panel for 1992, and adjust the dollar amounts for different years based on (1) the CPI-U for child and work expenses and (2) the medical CPI-U for medical expenditures. Medical expenditures over time also reflect changes in the cost of medicare part B coverage.[65] Other methods of updating amounts (or the use of updated models rather than updated dollar amounts) would have resulted in slightly different results. Much of the analysis shown in the next section is based on 1992 data because we feel most confident about the imputations in this, the base year for the estimates.

There are several reasons that the 1992 resource estimates are different from those used by the Panel. First, they reflect refinements made to the medical out-of-pocket expenditures by including part B medicare costs,[66] which were excluded from the Panel's imputation. Second, the Panel estimates are based on a public use file that caps values at the upper range of the income distribution in a procedure called topcoding; the use of topcoded income amounts can have a small effect on these estimates, primarily through the imputations employed in the measure. Third, there was a minor programming error in the files given to the Panel by the Census Bureau that resulted in the misclassification of some spouses. Fourth, there are some random elements in the imputations. And fifth, the March 1993 file used here was revised using 1990 census population controls; the estimates in the Panel report used the 1980 census controls. In this discussion, we do not present average resources for the population, but only the impact of using different thresholds and the results of testing our resource measure.

The resource definition used to define poverty is enormously important, as even minor changes in the definition could have a large effect on the composition of the poverty population. For example, it would appear that an implicit assumption in the Panel's resource recommendation is that the "current money income" resource definition understates the poverty rate of working families (in that it fails to account for taxes and work-related expenses that reduce the disposable income of workers relative to that of nonworkers) and overstates the poverty rate of nonworkers (in that it fails to account for the noncash benefits that nonworkers are more likely to receive). While it is easy to speculate how an alternate resource definition might change our view of who is poor, the fact is that, given the extent of differences between the current and proposed measure, the only way to really understand the effects of the Panel's proposals is to simulate them and compare the results with estimates based on the official definition in a process described below.

Results based on the experimental measures

In this section, we try to answer two questions: (1) Would the Panel's proposed measure change our view of how poverty rates for different demographic groups have changed over

Table 6. Distribution of the poverty population by selected characteristics, 1992

	Number (thousands)			Percent of the poor		
	Thresholds[1]			Thresholds[1]		
	Official	Bundle 1	Bundle 2	Official	Bundle 1	Bundle 2
Total persons	256,549	256,549	256,549	—	—	—
Total poor persons	38,014	51,114	59,281	100.00	100.00	100.00
Children (under 18 years)	15,294	18,518	21,198	40.23	36.23	35.76
Persons aged 18–64 years	18,793	25,764	30,041	49.44	50.40	50.68
Elderly (over 64 years)	3,928	6,831	8,043	10.33	13.36	13.57
White	25,259	36,375	42,833	66.45	71.16	72.25
Black	10,827	12,030	13,397	28.48	23.54	22.60
Other	1,929	2,709	3,051	5.07	5.30	5.15
Non-Hispanic	30,422	40,471	47,027	80.03	79.18	79.33
Hispanic	7,592	10,643	12,254	19.97	20.82	20.67
No worker in household	17,067	18,666	20,432	44.90	36.52	34.47
Worker in household	20,947	32,448	38,850	55.10	63.48	65.54
Married	13,304	23,674	28,596	45.94	57.10	59.23
Female householder	14,205	15,597	17,172	49.05	37.62	35.57
Other	1,452	2,188	2,514	5.01	5.28	5.21

[1]Thresholds derived from calculation:

((1.15*mean of amount of 78 percent of basic bundle expenditures median)+ (1.25 * mean of amount that is 83 percent of basic bundle expenditures median))/2; equivalence scale $=(A+.7K)^{0.7}$.

Bundle 1 and 2 thresholds based on basic Bundles 1 and 2, respectively.

Basic Bundle 1 = Food + Clothing + Shelter + Utilities.

Homeowners' shelter expenditures include mortgage interest and related charges, but not reductions in mortgage principals.

Basic Bundle 2 = Food + Clothing + Shelter + Utilities.

Here, homeowners' shelter expenditures are defined as the rental equivalence value reported when the respondent is asked for the amount for which the house could be rented.

Table 7. Official poverty rates compared with rates based on experimental measures for selected demographic groups, 1992

	Poverty rate (in percent)					Percentage-point difference (standardized)[1]			
	Official	NAS1[2]	NAS2[2]	B1[3]	B2[3]	NAS1[2]	NAS2[2]	B1[3]	B2[3]
Total persons	14.8	18.1	19.0	19.9	23.1	3.3	4.2	5.1	8.3
Relatively high poverty rates									
Children	22.4	26.4	26.4	27.1	31.0	2.7	2.7	3.1	5.7
Hispanic	29.6	41.0	40.9	41.5	47.8	5.7	5.7	6.0	9.1
Black	33.4	35.6	36.8	37.1	41.3	1.0	1.5	1.6	3.5
Female householder	39.0	–	–	42.8	47.1	–	–	1.4	3.1
Relatively low poverty rates									
Married couples	7.7	–	–	13.7	16.5	–	–	11.6	17.1
Worker in family	9.7	13.7	14.1	15.0	17.9	6.2	6.8	8.1	12.7
White	11.9	15.3	16.1	17.1	20.1	4.3	5.3	6.5	10.3
Aged 18–64	11.9	–	–	16.3	19.1	–	–	5.5	8.9
Elderly	12.9	14.6	18.0	22.5	26.4	1.9	5.8	10.9	15.5

[1] Standardized percentage-point difference = (current total population poverty rate/current rate for group) *actual percentage-point change of the experimental poverty rate less the official poverty rate.

[2] NAS1 uses scale economy factor 0.75; NAS2 uses scale economy factor 0.65. The standardized changes are slightly different from those published, because the official poverty rates are slightly different. See Connie F. Citro and Robert T. Michael, eds., *Measuring Poverty: A New Approach* (Washington, National Academy Press, 1995), table 5–8, p. 265.

[3] B1 and B2 are the poverty rates based on basic Bundles 1 and 2 thresholds, respectively. (See the text for estimation methodology.)

Basic Bundle 1 = Food + Clothing + Shelter + Utilities.

Homeowners' shelter expenditures include mortgage interest and related charges but not reductions in mortgage principal.

Basic Bundle 2 = Food + Clothing + Shelter + Utilities.

Here, homeowners' shelter expenditures are defined as the rental equivalence value reported when the respondent is asked for the amount for which the house could be rented.

NOTE: Dash indicates data not available.

time? and (2) Would the proposed measure change our view of who is poor? In tables 5 and 6, the official poverty rates for different demographic groups for 1990 through 1995 are compared with the poverty rates that we produced following the Panel's proposed methods (threshold Bundles 1 and 2). Table 7 shows, for selected demographic groups, three sets of poverty rates for 1992: the official rates, the rates produced by the Panel (NAS1 and NAS2) , and the rates we produced using threshold Bundles 1 and 2 (B1 and B2). Also shown are standardized changes in the rates compared with the official rates. In table 6, we present the distribution of the poverty population for 1992 as defined by these groups. Table 8 shows the distribution of the poverty population when Multipliers A1, A2, A4, and A5 thresholds are assumed.

Poverty rates. At this very early stage of analysis of the likely effects of the Panel's recommendations, it is probably not wise to focus too much on the level of poverty rates, but rates are

Table 8. Alternative estimates and distributions of the poverty population by selected characteristics, 1992

Characteristic	Thresholds						
	Official	Bundle 1	Multiplier A1	Multiplier A2	Bundle 2	Multiplier A4	Multiplier A5
Reference family:							
Threshold	$14,228	$14,796	$14,773	$15,206	$16,114	$15,821	$16,159
Poverty rate of persons	14.8	19.9	19.9	21.0	23.1	22.4	23.2
	Persons in families (in thousands)						
Total	256,549	256,549	256,549	256,549	256,549	256,549	256,549
Total poor	38,014	51,114	50,943	53,822	59,281	57,484	59,530
Children (under 18 years)	15,294	18,518	18,448	19,403	21,198	20,612	21,273
Persons aged 18 to 64 years	18,793	25,764	25,683	27,148	30,041	29,088	30,183
Elderly (over 64 years)	3,928	6,831	6,811	7,271	8,043	7,784	8,074
White	25,259	36,375	36,253	38,518	42,833	41,386	43,049
Black	10,827	12,030	11,997	12,463	13,397	13,114	13,418
Other	1,929	2,709	2,693	2,841	3,051	2,983	3,063
Non-Hispanic	30,422	40,471	40,318	42,611	47,027	45,628	47,216
Hispanic	7,592	10,643	10,624	11,211	12,254	11,856	12,314
No worker in household	17,067	18,666	18,623	19,316	20,432	20,089	20,467
Worker in household	20,947	32,448	32,319	34,506	38,850	37,394	39,063
Married	13,368	23,674	23,561	25,353	28,596	27,572	28,751
Female householder	19,981	15,597	15,563	16,097	17,172	16,794	17,216
Other	4,666	2,188	2,188	2,325	2,514	2,422	2,528
	Percent distribution						
Total poor	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Children (under 18 years)	40.2	36.2	36.2	36.1	35.8	35.9	35.7
Persons aged 18 to 64 years	49.4	50.4	50.4	50.4	50.7	50.6	50.7
Elderly (over 64 years)	10.3	13.4	13.4	13.5	13.6	13.5	13.6
White	66.5	71.2	71.2	71.6	72.3	72.0	72.3
Black	28.5	23.5	23.5	23.2	22.6	22.8	22.5
Other	5.1	5.3	5.3	5.3	5.1	5.2	5.1
Non-Hispanic	80.0	79.2	79.1	79.2	79.3	79.4	79.3
Hispanic	20.0	20.8	20.9	20.8	20.7	20.6	20.7
No worker in household	44.9	36.5	36.6	35.9	34.5	34.9	34.4
Worker in household	55.1	63.5	63.4	64.1	65.5	65.1	65.6
Married	45.9	57.1	57.0	57.9	59.2	58.9	59.3
Female householder	49.1	37.6	37.7	36.8	35.6	35.9	35.5
Other	5.0	5.3	5.3	5.3	5.2	5.2	5.2

NOTE: Official poverty thresholds for 1992 used.

Bundle 1 and Bundle 2 thresholds derived using methods outlined in text.

Basic Bundle 1 = Food + Clothing + Shelter + Utilities.

Homeowners' shelter expenditures include mortgage interest and related charges, but not reductions in mortgage principals.

Basic Bundle 2 = Food + Clothing + Shelter + Utilities.

Here homeowners' shelter expenditures are defined as the rental equivalence value reported when the respondent is asked for the amount for which the house could be rented.

Multiplier A1 thresholds derived using multipliers of 1.21 and 1.19; Multiplier A2 thresholds derived from multipliers of 1.24 and 1.23.

Multiplier A4 thresholds derived using multipliers of 1.19 and 1.17; Multiplier A5 thresholds derived from multipliers of 1.21 and 1.20.

Exhibit 1. Elements of the current and proposed poverty measures [1]

Element	Current measure	Proposed measure
Threshold concept	Food times a large multiplier for all other expenses	Food, clothing, shelter, utilities, plus a small amount for other expenses
1992 level (two-adult, two-child family)	$14,228	Suggested range of $13,700–$15,900
Updating method	Update 1963 level each year for price changes	Update each year by change in spending on food, clothing, and shelter over previous 3 years by two-adult, two-child families
Threshold adjustments:		
By family type	Separately developed thresholds by family type; lower thresholds for elderly singles and couples	Reference family threshold adjusted by use of equivalence scale, which assumes children need less than adults and economies of scale for larger families
By geographic area	No adjustments	Adjusting for housing cost by region and size of metropolitan area
Family resource definition (to compare with threshold to determine poverty status)	Gross (before-tax) money income from all sources	Gross money income, plus value of near-money in-kind benefits (such as food stamps), minus income and payroll taxes and other nondiscretionary expenses (such as child care and other work-related expenses; child support payments to another household; out-of-pocket medical care expenses, including health insurance premiums)
Data source (for estimating income)	March Current Population Survey	Survey of Income and Program Participation
Period of measurement	Annual	Annual, supplemented by shorter term and longer term measures
Economic unit of analysis	Families and unrelated individuals	Families (including cohabiting couples) and unrelated individuals

[1]Reproduced from Connie F. Citro and Robert T. Michael, eds., *Measuring Poverty: A New Approach* (Washington, National Academy Press, 1995), table 1.1, p. 41.

important as a starting point from which to examine the composition of, and trends in, the poverty population. Bundle 1 (B1) thresholds for 1992 (the base year for the Panel's estimates) yield a poverty rate for the total population of 19.9 percent, 5.1 percentage points above the official poverty rate of 14.8 percent. (See table 7.) The B1 poverty rates are similar to, although slightly higher than,[67] those produced by the Panel (NAS1 and NAS2), while B2 poverty rates are higher.

Over the 1990–95 period, rates under the official and proposed methodologies behave similarly, with increases over the 1990–93 period and declines over the 1993–95 period. (See table 5.) The official rate rose from 13.5 to 15.1 percent between 1990 and 1993 and fell to 13.8 percent by 1995. The experimental rates rose from 18.3 to 20.6 percent from 1990 to 1993 and fell to 18.4 percent by 1995. Under each scenario (Bundle 1 and 2 thresholds), the 1995 rate is similar to the 1990 rate. Rates based on Bundle 2 thresholds are higher for each year than are the rates based on Bundle 1 thresholds. These results suggest that poverty rates change with the business cycle.[68] However, over the 1993–94 period, poverty rates dropped for blacks and for persons living in families with a female householder, regardless of the bundle used in the analysis. This drop is due to the addition of the earned income tax credit in the resource measure.

Obviously, there are many factors that account for differences between the official and modified poverty rates, such as the concentration of income around the poverty threshold, the level of noncash transfer program participation, tax burdens, and medical expenditures. So it is not surprising that the levels of difference between the official and experimental poverty rates are not uniform across demographic groups. In order to explore these differences, we follow the Panel's method of examining the differences in poverty rates in terms of standardized percentage-point changes. The changes are standardized so that results for each group are comparable with those for the total population. The standardized changes are summarized in table 7.

Generally, the differences in poverty rates are small for groups with very high official poverty rates and larger for groups with lower poverty rates. Let us examine this relation-

Summary of the recommendations of the Panel on Poverty and Family Assistance[1]

Recommendation 1.1. The official U.S. measure of poverty should be revised to reflect more nearly the circumstances of the Nation's families and changes in them over time. The revised measure should comprise a set of poverty thresholds and a definition of family resources—for comparison with the thresholds to determine who is in or out of poverty—that are consistent with each other and otherwise statistically defensible. The concepts underlying both the thresholds and definition of family resources should be broadly acceptable and understandable and operationally feasible.

Recommendation 1.2. On the basis of the criteria in Recommendation 1.1, the poverty measure should have the following characteristics:

- The poverty thresholds should represent a budget for food, clothing, shelter (including utilities), and a small additional amount to allow for other needs (such as household supplies, personal care, and nonwork-related transportation).
- A threshold for a reference family type should be developed using actual Consumer Expenditure Survey data and updated annually to reflect changes in expenditures for food, clothing, and shelter over the previous 3 years.
- The reference family threshold should be adjusted to reflect the needs of different family types and to reflect geographic differences in housing costs.
- Family resources should be defined—consistent with the threshold concept—as the sum of money income from all sources, together with the value of near-money benefits (such as food stamps) that are available to buy goods and services in the budget, minus expenses that cannot be used to buy these goods and services. Such expenses include income and payroll taxes, child care and other work-related expenses, child support payments to another household, and out-of-pocket medical care costs, including health insurance premiums.

Recommendation 2.1. A poverty threshold with which to initiate a new series of official U.S. poverty statistics should be derived from Consumer Expenditure Survey data for a reference family of four persons (two adults and two children). The procedure should be to specify a percentage of median annual expenditures for such families on the sum of three basic goods and services—food, clothing, and shelter (including utilities)—and apply a specified multiplier to the corresponding dollar level so as to add a small amount for other needs.

Recommendation 2.2. The new poverty threshold should be updated each year to reflect changes in consumption of the basic goods and services contained in the poverty budget: determine the dollar value that represents the designated percentage of the median level of expenditures on the sum of food, clothing, and shelter for two-adult, two-child families, and apply the designated multiplier. To smooth out year-to-year fluctuations and to lag the adjustment to some extent, perform the calculations for each year by averaging the most recent 3 years' worth of data from the Consumer Expenditure Survey, with the data for each of those years brought forward to the current period by using the change in the Consumer Price Index.

Recommendation 2.3. When the new poverty threshold concept is first implemented and for several years thereafter, the Census Bureau should produce a second set of poverty rates for evaluation purposes by using the new thresholds updated only for price changes (rather than for changes in consumption of the basic goods and services in the poverty budget).

Recommendation 2.4. As part of implementing a new official U.S. poverty measure, the current threshold level for the reference family of two adults and two children ($14,228 in 1992 dollars) should be reevaluated, and a new threshold level established with which to initiate a new series of poverty statistics. That reevaluation should take account of both the new threshold concept and the real growth in consumption that has occurred since the official threshold was first set 30 years ago.

Recommendation 3.1. The four-person (two-adult, two-child) poverty threshold should be adjusted for other family types by means of an equivalence scale that reflects differences in consumption by adults and children under 18 and economies of scale for larger families. A scale that meets these criteria is the following: children under 18 are treated as consuming 70 percent as much as adults on average; economies of scale are computed by taking the number of adult equivalents in a family (that is, the number of adults plus 0.70 times the number of children) and then raising this number to a power of from 0.65 to 0.75.

Recommendation 3.2. The poverty thresholds should be adjusted for differences in the cost of housing across geographic areas of the country. Available data from the decennial census permit the development of a reasonable cost-of-housing index for nine regions and, within each region, for several population size categories of metropolitan areas. The index should be applied to the housing portion of the poverty thresholds.

Recommendation 3.3. Appropriate agencies should conduct research to determine methods that could be used to update the geographic housing cost component of the poverty thresholds between the decennial censuses.

Recommendation 3.4. Appropriate agencies should conduct research to improve the estimation of geographic cost-of-living differences in housing, as well as other components of the poverty budget. Agencies should consider improvements to data series, such as the BLS area price indexes, that have the potential to support improved estimates of cost-of-living differences.

Recommendation 4.1. In developing poverty statistics, any significant change in the definition of family resources should be accompanied by a consistent adjustment of the poverty thresholds.

Recommendation 4.2. The definition of family resources for comparison with the appropriate poverty threshold should be disposable money and near-money income. Specifically, resources should be calculated as follows:

- estimate gross money income from all public and private sources for a family or unrelated individual (which is income as defined in the current measure);
- add the value of near-money nonmedical in-kind benefits, such as food stamps, subsidized housing, school lunches, and home energy assistance;
- deduct out-of-pocket medical care expenditures, including health insurance premiums;
- deduct income taxes and Social Security payroll taxes;
- for families in which there is no nonworking parent, deduct actual child care costs per week worked, not to exceed the earnings of the parent with the lower earnings or a cap that is adjusted annually for inflation;
- for each working adult, deduct a flat amount per week worked (adjusted annually for inflation and not to exceed earnings) to account for work-related transportation and miscellaneous expenses; and
- deduct child support payments from the income of the payer.

Recommendation 4.3. Appropriate agencies should work to develop one or more "medical care-risk" indexes that measure the economic risk to families and individuals of having no, or inadequate, health insurance coverage. However, such indexes should be kept separate from the measure of economic poverty.

Recommendation 5.1. The Survey of Income and Program Participation (SIPP) should become the basis of official U.S. income and poverty statistics in place of the March income supplement to the Current Population Survey. Decisions about the SIPP design and questionnaire should take account of the data requirements for producing reliable time series of poverty statistics using the proposed definition of family resources (money and near-money income minus certain expenditures). Priority should be accorded to methodological research for SIPP that is relevant for improved poverty measurement. A particularly important problem to address is population undercoverage, particularly of low-income minority groups.

Recommendation 5.2. To facilitate the transition to SIPP, the Census Bureau should produce concurrent time series of poverty rates from both SIPP and the March CPS by using the proposed revised threshold concept and updating procedure and the proposed definition of family resources as disposable income. The current series should be developed starting with 1984, when SIPP was first introduced.

Recommendation 5.3. The Census Bureau should routinely issue public use files from both SIPP and the March CPS that include the Bureau's best estimate of disposable income and its components (taxes, in-kind benefits, child care expenses, and so forth), so that researchers can obtain poverty rates consistent with the new threshold concept from either survey.

Recommendation 5.4. Appropriate agencies should conduct research on methods to develop poverty estimates from household surveys with limited income information that are comparable to the estimates that would be obtained from a fully implemented disposable income definition of family resources.

Recommendation 5.5. Appropriate agencies should conduct research on methods to construct small-area poverty estimates from the limited information in the decennial census that are comparable with the estimates that would be obtained under a fully implemented disposable income concept. In addition, serious consideration should be given to adding one or two questions to the decennial census to assist in the development of comparable estimates.

Recommendation 5.6. The Bureau of Labor Statistics should undertake a comprehensive review of the Consumer Expenditure Survey to assess the costs and benefits of changes to the survey design, questionnaire, sample size, and other features that could improve the quality and usefulness of the data. The review should consider ways to improve the survey for the purpose of developing poverty thresholds, for permitting the measurement of poverty on the basis of a consumption or expenditure concept of family resources at some future date, and for other analytic

purposes related to the measurement of consumption, income, and savings.

Recommendation 6.1. The official poverty measure should continue to be derived on an annual basis. Appropriate agencies should develop poverty measures for periods that are shorter and longer than a year, with data from SIPP and the Panel Study of Income Dynamics, for such purposes as program evaluation. Such measures may require the inclusion of asset values in the family resources definition.

Recommendation 6.2. The official measure of poverty should continue to use families and unrelated individuals as the units of analysis for which thresholds are defined and resources aggregated. The definition of "family" should be broadened for purposes of poverty measurement to include cohabiting couples.

Recommendation 6.3. Appropriate agencies should conduct research on the extent of resource sharing among roommates and other household and family members to determine if the definition of the unit of analysis for the poverty measure should be modified in the future.

Recommendation 6.4. In addition to the basic poverty counts and ratios for the total population and groups—the number and proportion of poor people—the official poverty series should provide statistics on the average income and distribution of income for the poor. The count and other statistics should also be published for poverty measures in which family resources are defined net of government taxes and transfers, such as a measure that defines income in before-tax terms, a measure that excludes means-tested government benefits from income, and a measure that excludes all government benefits from income. Such measures can help assess the effects of government taxes and transfers on poverty.

Recommendation 7.1. Agencies responsible for Federal assistance programs that use the poverty guidelines derived from the official poverty thresholds (or a multiple there of) to determine eligibility for benefits and services should consider the use of the Panel's proposed measure. In their assessment, agencies should determine whether it is necessary to modify the measure—for example, through a simpler definition of family resources or by linking eligibility less closely to the poverty thresholds because of possible budgetary constraints—to better serve program objectives.

Recommendation 8.1. The States should consider linking their need standard for the Aid to Families with Dependent Children program to the Panel's proposed poverty measure, and whether it may be necessary to modify this measure to better serve program objectives.

[1]Adapted from Citro and Michael, *Measuring Poverty*, pp. 4–15.

ship by comparing the poverty rates using Bundle 1 thresholds for 1992 with the official thresholds. In standardized terms, the black poverty rate is only 1.6 points higher; for persons in families maintained by women, the change is 1.4 percentage points. One exception to this rule is for persons of Hispanic origin. Their official poverty rate is relatively high (29.6 percent), as is their revised poverty rate (41.5 percent); and their standardized change is 6 percentage points.

For groups with a lower official incidence of poverty, the percentage increase in the rates based on the experimental thresholds is relatively large. The standardized change in poverty rates for persons aged 18 to 64 yields a rate that is 5.5 percentage points higher than the official rate. The rate for those over 64 years of age is 10.9 percentage points higher, and the white poverty rate is 6.5 percentage points above the official poverty rate. The percentage-point change in the poverty rate for families with at least one worker is 8.1, and that for married couples is 11.6.

The changes are in the same direction when threshold Bundle 2 poverty rates and the official poverty rate are compared. However the changes in percentage points are larger because threshold Bundle 2 is larger than threshold Bundle 1.

Composition of the poverty population. The effect of the differences in levels between the official and revised poverty rates is evident in table 6. Here, the composition of the poverty population under the official and experimental poverty measures is examined, based on results for 1992. As one might expect, there are differences in the composition of the poverty population when the proposed measures are applied. For example, under the official poverty definition, the following groups of persons make up a greater percentage of the poor than when Bundle 1 thresholds are assumed (this same general result applies when Bundle 2 thresholds are assumed): children (40.2 versus 36.2 percent), blacks (28.5 versus 23.5 percent), non-Hispanics (80 versus 79.2 percent), persons living in families with no workers (44.9 versus 36.5 percent), and those living in households headed by women (49.1 versus 37.6 percent). In contrast, all other groups noted in table 6 make up a greater percentage of the poor when the experimental measures are used. We observe increases for the elderly (based on rates of 10.3 and 13.4 percent) and for persons living in married-couple families (based on rates of 45.9 and 57.1 percent). Also note-

worthy is the increase in the percentage of the poor living in families in which there is at least one worker present, which rises from 55.1 to 63.5 percent of the poor.

Does the new poverty measure change our view of who is poor? The answer is that it yields a poverty population that looks more like the total population. Due to the subtraction of work-related expenses, we see relatively more persons in families with a worker, more persons aged 18 to 64 years, and more persons in married-couple families among the poor. We also see relatively fewer persons in families that receive cash or near-cash government transfers. Persons in families with children, in families with no workers, and in female-householder families are relatively less likely to be classified as poor. It is clear that, as we have interpreted the Panel's proposal, the composition of the poverty population changes quite a bit.

Other thresholds. Table 8 shows the results of changing the multipliers from 1.15 and 1.25 to the *computed* multipliers, in order to account for additional "other" expenditures. The estimates, relating to 1992, are presented in terms of population characteristics; as in earlier sections of the analysis, 78 and 83 percent of median expenditures are the basis for deriving the thresholds. As a point of reference, the dollar values for each of the thresholds for the reference family in 1992 also are presented in the table.

The thresholds that we use in the two preceding sections (Bundle 1 and Bundle 2 thresholds, with multipliers of 1.15 and 1.25), the number of persons living in families with resources below the thresholds, and the percentage distributions for selected demographic groups are very similar to the rates based on Multiplier thresholds A1 and A4. (See the top panel of table 8 for the number of persons under the thresholds, and the bottom panel for the percentage distributions.)

The addition of expenditures for education and reading (reflected in Multiplier thresholds A2 and A5) shifts the overall poverty rates up only slightly (bottom panel of table 8), from 19.9 to 21.1 and 22.4 to 23.2 for Multipliers A1 versus A2 thresholds and Multiplier A4 versus A5 thresholds. Bundle 2 thresholds (with a rental equivalence approach to shelter costs for homeowners) and Multipliers A4 and A5 thresholds result in higher overall poverty rates than those based on Bundle 1 thresholds and Multipliers A1 and A2 thresholds.

In examining the percentage distribution of the poverty population for 1992 by selected characteristics, we find that the percentages of the poor for most of the groups are similar when Bundle 1 and 2 thresholds, and the respective Multiplier thresholds, are assumed. However, differences do result. For example, if we compare the percentages based on Bundle 1 and 2 thresholds, we find a decrease for blacks (23.5 versus 22.6 percent), for persons living in families with no workers (from 36.5 to 34.5 percent), and for persons living in female-headed households (37.6 versus 35.6 percent). The same definitional change results in increases in the percentage distributions for persons living in families with at least one worker (63.5 versus 65.5) and for persons living in married-couple families (57.1 versus 59.2 percent).

These differences across subgroups are similar to those presented in the Panel's report and closely match expectations, given the construction of the resource measure. One small but notable difference between the two sets of estimates is that poverty rates for the elderly under our experimental measures are higher than those reported; this is due to the inclusion of medicare part B premiums in the medical out-of-pocket amounts deducted from income.

OUR FINDINGS REVEAL that poverty thresholds constructed according to the recommendations of the National Academy of Sciences Panel on Poverty and Family Assistance seem to be stable over time and across various definitions of the minimum expenditure bundle. Similarly, poverty rates based on these thresholds appear to behave in a reasonable manner, both over time and across variously defined budgets, and in fact, not all that differently from those derived using the official definition of poverty currently in use. Generally, the poverty rates follow trends over time similar to the official poverty measure and are always higher, both over time and across thresholds and subgroups, than rates based on the official measure. Differences across subgroups are stable over time, and we see a poverty population that looks more like the total population in terms of demographic and socioeconomic characteristics. These results are in line with expectations posited in the Panel's report—that is, the poor are more likely to be white, to be married, and to have a member of the family in the work force. □

FOOTNOTES

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[1] Gordon Fisher refers to such developments as changes in social processes. He notes that with technological advances and increases in levels of living, new consumption items are introduced. With the introduction of new items and more widespread acceptance and use of these items, the belief about what are necessities changes. Changes in the way our society is organized also can contribute to changes in our expectations (for example, greater dependence on private rather than public transportation), as can changes in social policy (such as changes in the minimum quality acceptable for public housing). See Gordon Fisher, "Relative or Absolute—A New Light on the Behavior of Poverty Lines Over Time," *Newsletter of the Government Statistics Section and the Social Statistics Section of the American Statistical Association*, Summer 1996, pp. 10–12.

[2] Connie F. Citro and Robert T. Michael, eds., *Measuring Poverty: A New Approach* (Washington, National Academy Press, 1995).

[3] These deductions would include income and payroll taxes, child care and other work-related expenses, child support to another household, and out-of-pocket medical care costs. See Citro and Michael, *Measuring Poverty*, pp. 4–5.

[4] Estimation of the thresholds work is being conducted primarily by the Bureau of Labor Statistics and estimation of resources by the Census Bureau.

[5] For more information concerning these measures, see Citro and Michael, *Measuring Poverty*; Aldi J.M. Hagenaars, *Perception of Poverty* (Amsterdam, North Holland, 1986); and Patricia Ruggles, *Drawing the Line: Alternative Poverty Measures and Their Implications for Public Policy* (Washington, The Urban Institute Press, 1990). Examples of studies focusing on relative and subjective measures include Thesia I. Garner and Klaas de Vos, "Income sufficiency v. poverty: Results from the United States and the Netherlands," *Journal of Population Economics*, vol. 8, 1995, pp. 117–34; R. Morisette and Susan Poulin, *Income Satisfaction Supplement. Summary of Four Survey Years*, Labour and Household Surveys Analysis Division Staff Report (Ottawa, Canada, Statistics Canada, 1991); and Karel Van den Bosch, Tim Callan, J. Estivill, P. Hausman, B. Jeandidier, R. Muffels, and J. Yfantopoulos, "A Comparison of Poverty in Seven European Countries and Regions, Using Subjective and Relative Measures," *Journal of Population Economics*, vol. 6, issue 3, pp. 235–59.

[6] *Poverty in the United States: 1991*, Current Population Reports, Consumer Income Series, P-60, no. 181(Bureau of the Census, 1992).

[7] See A.J.M. Hagenaars, Klaas de Vos, and M.A. Zaidi, *Poverty Statistics in the Late 1980s: Research Based on Micro-Data* (Luxembourg, Eurostat, 1997); "Income Distribution and Poverty in EU12–1993," in *Statistics in Focus—Population and Social Conditions, 1997–6* (Luxembourg, Eurostat, 1997); Commission of the European Communities, *Final Report from the Commission to the Council on the First Programme of Pilot Schemes and Studies to Combat Poverty* (Brussels, 1981); and Peter Townsend, *Poverty in the United Kingdom* (Harmondsworth, Penguin Books, 1979).

[8] Karel Van den Bosch, personal communication, June 1996 and December 1996.

[9] Gordon M. Fisher, "The Development and History of the Poverty Thresholds," *Social Security Bulletin*, Winter 1992.

[10] See Fisher, "The Development and History"; and Citro and Michael, *Measuring Poverty*, p. 109.

[11] Connie Citro, discussant of an earlier version of this article when it was presented as a paper during the 1996 Society of Government Economists Conference Session on Inequality and Poverty, Nov. 22, 1996.

[12] Fisher, "The Development and History," p.10.

[13] Also see: *Estimates of Poverty Including the Value of Noncash Benefits: 1984*, Technical Paper 55 (Bureau of the Census, 1985); *Measuring the Effect of Benefits and Taxes on Income and Poverty: 1986*, Current Population Reports, Series P-60, No. 164-RD-1 (Bureau of the Census, 1988); *Poverty in the United States 1995* (Bureau of the Census, 1996); Citro and Michael, *Measuring Poverty*; and Ruggles, *Drawing the Line*.

[14] Gordon Fisher, "Poverty Guidelines for 1992," *Social Security Bulletin*, spring 1992.

[15] Ruggles, *Drawing the Line*.

[16] See *The War on Poverty, Hearings Before the Joint Economic Committee, Congress of the United States, 102nd Congress, First Session*, July 25, Sep. 25, and Nov. 19, 1991, S. HRG. 102–631 (Washington, U.S. Government Printing Office, 1992).

[17] See Citro and Michael, *Measuring Poverty*.

[18] One measure that Statistics Canada uses to determine the low income status of families, similar to family poverty, is the set of "low-income cutoffs" (LICO's). The LICO's are based on a hybrid approach, in the sense that a specific set of commodities is assumed as necessary, but the proportion and implicit allowance for other spending are determined in a relative manner. See Citro and Michael, *Measuring Poverty*, pp. 127–28.

[19] The entire report can be found on the Census Bureau Web site: hhtp://www.census.gov/hhes/www/povmeas.html

[20] Citro and Michael, *Measuring Poverty*, p. xvii.

[21] Since the Panel's report was published, other studies have examined these issues. See, for example, U.S. General Accounting Office: (a) Controlled correspondence, GAO/GGD-96-183R (Washington, 1996); and (b) *Poverty Measurement: Issues in Revising and Updating the Official Definition*, GAO/HEHS-97-38, April 1997. (2) Brookings Institution and Institute for Research on Poverty: (a) "Summary of Meeting on Alternative Poverty Measure Strategy" (The Brookings Institution, Apr. 8, 1997); (b) Gary Burtless, Tom Corbett, and Wendell Primus, "Improving the Measurement of American Poverty," unpublished paper, Apr. 8, 1997; and (c) Wendell Primus, "Implementing a New Measure of Poverty: State of Current Research and Analytical Work," unpublished paper, Feb. 13, 1997.

Since the publication of the Panel's report, working groups also have met to share information about current work related to poverty measurement. See Memorandum from Katherine Wallman (Office of Management and Budget), "Initial Meeting of Steering Group to Improve the Measurement of Income and Poverty," Mar. 26, 1997; and Burtless, Corbett, and Primus, "Improving the Measurement."

[22] Citro and Michael, *Measuring Poverty*, pp. 4–5.

[23] The basic bundle is composed of food, apparel, shelter, and utilities, which are defined as follows:

Food includes food purchased for home use and away, and excludes alcohol and tobacco and other nonfood items purchased at grocery stores.

Clothing includes expenditures for all types of clothing, including uniforms and sewing materials.

Shelter includes rent, and, for homeowners, mortgage interest (shelter does not include principal payment), taxes, maintenance, and repairs.

Utilities include fuels (such as natural gas and electricity), telephone, and public services (such as water and sewer).

[24] For the Panel's report, the reference family was specifically defined as including a married couple with two of their own children.

[25] Citro and Michael, *Measuring Poverty*, p. 101.

[26] *Ibid.*, pp. 194–99.

[27] *Ibid.*, p.148

[28] *Ibid.*

[29] The Panel members describe their approach in this way because they considered it to be conceptually more understandable than simply applying the year-to-year change in median expenditures for food, clothing, shelter, and utilities to a starting-year threshold. Both approaches are the same algebraically and produce the same results. (See Citro, discussant, 1996 Society of Government Economists Conference Session on Inequality and Poverty.)

[30] For example, if percentiles were used to define the thresholds, a situation could result in which a recession reduced median expenditures somewhat, but more dramatically lowered the expenditure level at the 30th per-

centile. It would not be desirable for the poverty threshold or standard of need to reflect this greater reduction. (See Citro, discussant, 1996 Society of Government Economists Conference Session on Inequality and Poverty.)

[31] Citro and Michael, *Measuring Poverty*, table 2-7, p. 156.

[32] A consumer unit comprises either (1) all members of a particular household who are related by blood, marriage, adoption, or other legal arrangements; (2) a person living alone or sharing a household with others or living as a roomer in a private home or lodging house or in permanent living quarters in a hotel or motel, but who is financially independent; or (3) two or more persons living together who use their incomes to make joint expenditure decisions. Financial independence is determined by the three major expense categories: housing, food, and other living expenses. To be considered financially independent, at least 2 of the 3 major expense categories have to be provided entirely or in part by the respondent.

[33] A vingtile is 1/20 of some total. For example, the fourth vingtile of an income distribution is the same as the first quintile or the second decile.

[34] *Transportation* expenditures were defined by the Panel to include vehicle finance charges, expenses for gasoline and motor oil, maintenance and repairs, vehicle insurance, public transportation (including airfares), and vehicle rentals, licenses, and other charges. In addition, transportation included the total purchase price (minus the trade-in value) of new and used vehicles.

Personal care includes products for hair, oral hygiene, and shaving; cosmetics and bath products; electric personal care appliances; other personal care products; and personal care services.

[35] *Education* includes tuition, fees, textbooks, supplies, and equipment for public and private nursery schools, elementary schools, high schools, colleges, universities, and other schools.

Reading materials includes subscriptions for newspapers, magazines, and books through book clubs, purchase of single copy newspapers, and magazines, newsletters, books, encyclopedias, and other reference books.

[36] Citro and Michael, *Measuring Poverty*, p. 151.

[37] In constructing the cost of raising a child, the Department of Agriculture used data from a 1990 study by the Department of Transportation, which found that employment-related transportation activities account for about 40 percent of travel costs for families with children. See Center for Nutrition Policy and Promotion, *Expenditures on Children by Families, 1995 Annual Report* (U.S. Department of Agriculture, 1996), p. 5; and Federal Highway Administration, *1990 Nationwide Personal Transportation Study* (U.S. Department of Transportation, 1994).

[38] Citro, discussant, 1996 Society of Government Economists Conference Session on Inequality and Poverty.

[39] For example see: Trudi J. Renwick, "Budget-Based Poverty Measurement: 1992 Basic Needs Budgets for American Families," *Proceedings of the Social Science Statistics Section of the American Statistical Association* (Alexandria, VA, American Statistical Association, 1993), pp. 573–82; *Urban Family Budgets and Comparative Indexes for Selected Urban Areas*, USDL 82–139 (Bureau of Labor Statistics, 1982); and John E. Schwarz and Thomas J. Volgy, *Forgotten Americans* (New York, W. W. Norton and Company, 1992).

[40] As did the Panel, we adjusted the thresholds for estimated differences in the cost of housing by size of metropolitan area within nine regions of the country; the cost-of-housing index values are relative to 1.00 for the United States as a whole; see Appendix A. (The thresholds shown in table 4 are not adjusted for geographic differences.)

[41] For a description of the housing adjustment, see Citro and Michael, *Measuring Poverty*, pp. 194–99, 249, 252–53.

[42] See citations in Citro and Michael, *Measuring Poverty*, p. 177.

[43] The Rothbarth method uses expenditures on adult goods as an indicator of the standard of living. For example, a married couple with a child must cut their budget in certain areas because the child brings needs but no resources. Certain adult expenditures, such as those for alcohol, tobacco, and adult clothing, should decline when a child is added to the family. If the reduction in income that caused the same decline in expenditures can be calculated, then the amount of income diverted to the child, and hence its cost, has been computed. The decline in expenditures in adult goods shows the amount of money that parents have diverted to the child, which is the information needed. It does not show a decline in living standards associated with the addition of a child.

[44] Citro and Michael, *Measuring Poverty*, p. 176. See also David M. Betson, "'Is Everything Relative?' The Role of Equivalence Scales in Poverty Measurement," unpublished paper, March 1996. Available from the author at the Department of Economics, University of Notre Dame, South Bend, IN.

[45] For example, a second person adds 0.29 to the scale, a third adds 0.24, a fourth adds 0.43, and a fifth person adds 0.31. In some cases, single-parent families have higher thresholds than married-couple families of the same size, which implies that children cost more than adults for some families. (See Citro and Michael, *Measuring Poverty*, p. 165).

[46] Citro and Michael, *Measuring Poverty*, p. 180. The proposed scale with a scale economy factor of 0.65 results in thresholds that are close to the official thresholds. The scales implicit in the official poverty thresholds for one-adult units and for one-adult, two-child families are greater than the scales based on the 0.65 scale economy factor; others are lower for the one-adult family types. The implicit scales are greater than the 0.65 economy factor-based scales for two adults with no children and for two adults with two children; others are lower for the two-adult family types.

[47] Citro and Michael, *Measuring Poverty*, p. 210; also see GAO congressional correspondence for a discussion of a consumption-based poverty measure, GAO/GGD-96-183R (General Accounting Office, 1996).

[48] See Citro and Michael, *Measuring Poverty*, pp. 210–14, and p. 279.

[49] Citro and Michael, *Measuring Poverty*, p. 214. The sample size for the Consumer Expenditure Survey is to increase by 50 percent beginning in fiscal year 1999.

[50] Based on briefing materials prepared for Citro and Michael, *Measuring Poverty* and the Panel's primary report (p.10).

[51] Child support paid was not subtracted in the Panel's study or in this study.

[52] Citro and Michael, *Measuring Poverty*, p. 71.

[53] *Op. cit.*, pp. 244, 267.

[54] About 85 percent of eligible households receive the earned income tax credit. (See John Karl Scholz, "Tax Policy and the Working Poor: The Earned Income Tax Credit," *Focus*, Winter 1993–94, pp. 1–12).

[55] For the most recent estimates of the government subsidies and taxes paid and their potential impact on poverty rates, see *Poverty in the United States: 1995*.

[56] Citro and Michael, *Measuring Poverty*, pp. 254–55.

[57] *Ibid.*, p. 255.

[58] *Ibid., 257*

[59] For homeowners, shelter expenditures include those for mortgage interest, taxes, maintenance, and repairs; shelter does not include payments for reduction of the mortgage principal.

[60] The value presented by the Panel for the 100th vingtile is more than double our mean. To obtain our mean for this vingtile, we average the expenditures over the 97.5th and 100th percentile range; the Panel's value is the top value in the data file for the reference family, not the mean for any range.

[61] Based on the Panel's report or the 1993 Maritato memorandum.

[62] Scale = $(A+.7K)^{0.7}$.

[63] The average of the two scale factors 0.65 and 0.75 is used for convenience.

[64] As noted earlier, the Panel followed this approach for ease in processing and because of the quick turnaround required to produce the estimates.

[65] Panel member David Betson is conducting research to revise the estimates for medical out-of-pocket expenditures. His study will be released by the National Academy of Sciences in the near future.

[66] David M. Betson, "Poor Old Folks: Have Our Methods of Poverty Measurement Blinded Us to Who Is Poor?" unpublished paper (South Bend, IN, University of Notre Dame, October 1995).

[67] The B1 poverty rate for the elderly is much higher than the NAS1 and NAS2 poverty rates because the Part B medicare costs are included in the resource definition used in this research, but are not included in the National Academy of Sciences resource definition.

[68] The stability may be due to the way in which the resource measure is constructed. Some of the elements are updates based on price indexes. If these elements had been updated based on actual data, a more erratic trend in the poverty rates might be observed.

[69] To standardize the changes in poverty rates, the ratio of the current poverty rate for the total population to the rate for the group is applied to the actual percentage-point change for that group. This procedure standardizes the percentage-point changes by treating each group as if it had the same poverty rate as all people. The Panel used this method because "it is awkward to speak of percentage changes in a percentage." See Citro and Michael, *Measuring Poverty*, p. 262.

Appendix A: Regional cost-of-housing index values

Table A-1. Cost-of-housing index values (relative to 1.00 for the United States as a whole) by region (census division) and size of metropolitan area[1]

Region and population size	Index value
New England (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont)	
Nonmetropolitan areas and metropolitan areas under 250,000 inhabitants	1.128
Metropolitan areas:	
250,000–500,000 inhabitants	1.128
500,000–1,000,000 inhabitants	1.148
1,000,000–2,500,000 inhabitants	1.141
2,500,000 inhabitants or more	1.209
Middle Atlantic (New Jersey, New York, Pennsylvania)	
Nonmetropolitan areas and metropolitan areas under 250,000 inhabitants	.908
Metropolitan areas:	
250,000–500,000 inhabitants	.997
500,000–1,000,000 inhabitants	1.020
1,000,000–2,500,000 inhabitants	.975
2,500,000 inhabitants or more	1.187
East North Central (Illinois, Indiana, Michigan, Ohio, Wisconsin)	
Nonmetropolitan areas and metropolitan areas under 250,000 inhabitants	.896
Metropolitan areas:	
250,000–500,000 inhabitants	.959
500,000–1,000,000 inhabitants	.987
1,000,000–2,500,000 inhabitants	.995
2,500,000 inhabitants or more	1.059
West North Central (Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, South Dakota)	
Nonmetropolitan areas and metropolitan areas under 250,000 inhabitants	.861
Metropolitan areas:	
250,000–500,000 inhabitants	.962
500,000–1,000,000 inhabitants	.981
1,000,000–2,500,000 inhabitants	1.028
2,500,000 inhabitants or more	—
South Atlantic (Delaware, District of Columbia, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, West Virginia)	
Nonmetropolitan areas and metropolitan areas under 250,000 inhabitants	.899
Metropolitan areas:	
250,000–500,000 inhabitants	.961
500,000–1,000,000 inhabitants	1.007
1,000,000–2,500,000 inhabitants	1.043
2,500,000 inhabitants or more	1.119
East South Central (Alabama, Kentucky, Mississippi, Tennessee)	
Nonmetropolitan areas and metropolitan areas under 250,000 inhabitants	.827
Metropolitan areas:	
250,000–500,000 inhabitants	.935
500,000–1,000,000 inhabitants	.947
1,000,000–2,500,000 inhabitants	—
2,500,000 inhabitants or more	—
West South Central (Arkansas, Louisiana, Oklahoma, Texas)	
Nonmetropolitan areas and metropolitan areas under 250,000 inhabitants	.858
Metropolitan areas:	
250,000–500,000 inhabitants	.911
500,000–1,000,000 inhabitants	.942
1,000,000–2,500,000 inhabitants	.962
2,500,000 inhabitants or more	1.005
Mountain (Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, Wyoming)	
Nonmetropolitan areas and metropolitan areas under 250,000 inhabitants	.888
Metropolitan areas:	
250,000–500,000 inhabitants	.976
500,000–1,000,000 inhabitants	1.039
1,000,000–2,500,000 inhabitants	1.003
2,500,000 inhabitants or more	—
Pacific (Alaska, California, Hawaii, Oregon, Washington)	
Nonmetropolitan areas and metropolitan areas under 250,000 inhabitants	.969
Metropolitan areas:	
250,000–500,000 inhabitants	1.018
500,000–1,000,000 inhabitants	1.028
1,000,000–2,500,000 inhabitants	1.104
2,500,000 inhabitants or more	1.217

NOTE: Housing cost indexes are calculated from 1990 census data on gross rent for two-bedroom apartments with specified characteristics; index values are drawn from the 45th percentile of the gross rent distributions, as described in the text of the article.

Dash indicates data not available or no such areas in the region.

[1] Table reproduced from Connie F. Citro and Robert T. Michael, eds., *Measuring Poverty: A New Approach* (Washington, National Academy Press, 1995), table 5–3, pp. 252–53.

Appendix B: Description of data sources

Consumer Expenditure Survey

The Consumer Expenditure Survey (CE) has two components—an Interview Survey and a Diary Survey. Interview survey data are used for this study. About 5,000 consumer units participate in the Interview Survey each quarter. Consumer units are interviewed five times, at 3-month intervals for 1 year. Data from the first interview are used to "bound" expenditures for subsequent interviews and are not used in estimation. The sample is a rotating panel in which 20 percent of the sample are interviewed for the first time each quarter while 20 percent are interviewed for the last time. The Interview Survey covers about 95 percent of total expenditures.

As part of the evaluation of CE data, BLS compares its estimates of aggregate consumer expenditures and income with independent sources of data. Comparisons are made with the Personal Consumption Expenditures component of the National Income and Product Accounts, the National Health Accounts, the Current Population Survey, and other data resources. When differences in definitions and populations are accounted for, the CE data compare reasonably well with both the levels and changes over time of the other data sources. (See *Consumer Expenditure Survey, 1992–93*, Bulletin 2462 (Bureau of Labor Statistics, September 1995).)

Current Population Survey

The Current Population Survey (CPS) is conducted by the Bureau of the Census for the Bureau of Labor Statistics. Each year, the March Supplement or Annual Demographic Supplement is used to collect income data. At various other times during the survey cycle, supplementary questions are asked concerning various topics. The population covered includes the civilian noninstitutional population of the United States and members of the Armed Forces in the United States living off post or with their families on post, but excludes all other members of the Armed Forces. The sample is about 60,000 households, including families and unrelated individuals; data are reported for more than 150,000 persons. Coverage does not include residents of U.S. territories or other areas outside the 50 States and the District of Columbia. During the 1993–95 period, three changes were introduced in the CPS: (1) for the 1993 survey, 1990 census population controls were introduced; (2) for the 1994 survey, the procedure for interviewing was converted from paper and pencil to Computer Assisted Personal Interviewing (CAPI); and (3) for the 1995 survey, a new sample based on the 1990 census design was introduced.

Survey of Income and Program Participation

The Survey of Income and Program Participation (SIPP) is a continuing panel survey, begun in 1983, that is sponsored and conducted by the Bureau of the Census. The design in effect until 1994 introduced a new sample panel each February. In 1994 and 1995, there were no panels introduced. In 1996, a nonoverlapping design was implemented. Each sample of households is interviewed every 4 months. Panels undergo eight interviews. The sample covers the U.S. civilian noninstitutionalized population and members of the Armed Forces living off post or with their families on post. Sample size has varied from 12,500 to 23,500 households per panel; the 1996 panel is composed of 36,700 households. The reporting unit is the household, with unrelated individuals and families also identified.

National Medical Expenditure Survey

The 1987 National Medical Expenditure Survey is a nationally representative survey of the civilian noninstitutionalized population in the United States. The survey was designed to provide estimates of insurance coverage and the use of services, expenditures, and sources of payment. The household component involved four rounds of personal and telephone interviews at 4-month intervals, with a short telephone interview constituting a supplementary fifth round. Ninety-four percent of those completing the first interview, or about 37,000 persons in approximately 15,000 households, participated in all four rounds of interviewing.

Appendix C: Computing the multipliers

The expenditures for two basic bundles of commodities are computed, and the multipliers are then applied to produce thresholds. *Basic bundle 1* is defined in the same way as the Panel's basic bundle, with expenditures defined as in standard Consumer Expenditure Survey tabulations and publications. For *basic bundle 2*, the definition of shelter expenditures changes to reflect a *rental equivalence value for homeowners' shelter costs*. To obtain the multipliers used with both basic bundles 1 and 2, an *outlays approach is used to define transportation expenditures*. Here, the total purchase prices of vehicles are not included in the computation, but the expenditures paid out of pocket each year are.

The shares of each basic bundle, in combination with larger bundles, are used to estimate the multipliers at each vingtile value for each year. One of the larger bundles allows for expenditures on transportation and personal care, while the other larger bundle allows for these expenditures plus those for education and reading. The estimated multipliers, using basic bundle 1 and the larger budgets, are referred to as A1 (based on the smaller of the two larger bundles) and A2 (based on the larger of the two larger bundles) below and in the main text and tables. The estimated multipliers based on basic bundle 2 expenditures and the two corresponding larger budgets are referred to as A4 and A5. The methodology is described below.

Multipliers based on basic bundle 1

To produce the multipliers, the expenditures for the basic bundle, expanded bundles (B1–B3), and ratios of the basic bundle to the expanded bundles are computed *for each consumer unit*. Consumer units are then ranked into 20 equal groups, or vingtiles, based on their expenditures for basic bundle 1. Then the mean shares for B1 through B3 are computed for each vingtile using the microdata. These mean shares are used to estimate the multiplier by vingtile at the aggregate level.

Basic bundle1 = food + clothing + shelter + utilities
B1 = Basic bundle 1 + transportation (outlays)
B2 = B1 + personal care
B3 = B2 + education + reading
Mean shares:
ShareB1 = Basic bundle1/B1
ShareB2 = Basic bundle1/B2
ShareB3 = Basic bundle1/B3

Multiplier A1 is computed as:

Half of transportation (outlays) share = 0.5*((1/ShareB1) – 1)
Personal care share = (1/ShareB2) – (1/ShareB1)

A1 = 1 + half of transportation (outlays) share + personal care share
or
A1 = 1 + (0.5*((1/ShareB1) – 1)) + ((1/ShareB2) – (1/ShareB1)).

Multiplier A2 is computed as:

Half of transportation (outlays) share = 0.5*((1/ShareB1) – 1)
Personal care, education, and reading share = (1/ShareB3) – (1/ShareB1)

A2 = 1 + half of transportation (outlays) share + (personal care + education + reading) share
or
A2 = 1 + (0.5*((1/ShareB1) – 1)) + ((1/ShareB3) – (1/ShareB1)).

Note that the multipliers will differ if they are estimated at the micro level rather than at the macro, or aggregate, level. We, as did the Panel, computed the shares at the micro level and then computed average of these shares. The remaining calculations are at the aggregate level for each vingtile. We are using the mean values of the ShareB1–B3 variables when we calculate the shares A1 and A2.

Multipliers based on basic bundle 2

The same methodology to obtain the multipliers applies when basic bundle 2 is used. Here, rental equivalence replaces shelter expenditures for homeowners, and transportation expenditures are defined as outlays.

The basic bundle, expanded bundles (B4–B6), and ratios of the basic bundle to the expanded bundles are computed *for each consumer unit.* The mean shares for B4 through B6 are computed for each vingtile. The mean shares are then used to estimate the multiplier by vingtile, as above.

Basic bundle 2 = food + clothing + rent for renters + rental equivalence for homeowners + utilities
B4 = Basic bundle 2 + transportation (outlays)
B5 = B4 + personal care
B6 = B5 + education + reading
Mean shares:
ShareB4 = Basic bundle 2/B4
ShareB5 = Basic bundle 2/B5
ShareB6 = Basic bundle 2/B6

Multiplier A4 is computed as:

Half of transportation (outlays) share = 0.5*((1/ShareB4) – 1)
Personal care share = 0.5*(1/ShareB5) – (1/ShareB4)

A4 = 1 + half of transportation (outlays) share + personal care share
or
A4= 1 + (0.5*((1/ShareB4) – 1)) + ((1/ShareB5) – (1/ShareB4)).

Multiplier A5 is computed as:

Half of transportation (outlays) share = 0.5*((1/ShareB4) – 1)
Personal care share = (1/ShareB6) – (1/ShareB4)

A5 = 1 + half of transportation (outlays) share + (personal care + education + reading) share
or
A5 = 1 + (0.5*((1/ShareB4) – 1)) + ((1/ShareB6) – (1/ShareB4)).

Earnings of college graduates: women compared with men

Among college graduates, women earned 73 percent as much as men in 1993; however, when earnings of women were compared with those of men in the same major field of study, at the same degree level, and in the same age group, about half of the women earned at least 87 percent as much as the men

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Among college graduates aged 25 to 64, women's median annual earnings were 73 percent of men's in 1993. When median earnings of women are compared with those of men of a similar age and with similar levels of education, major fields of study, and occupational characteristics, however, the earnings gap narrowed progressively, although still spanning a wide range: in some cases, women earned nearly as much as, or even more than, men with the same characteristics, while in others, women earned much less. This article uses a 1993 National Science Foundation survey to examine the differences between the earnings of men and women graduates in order to answer the question, How much do women earn compared with men? The short answer to this question is that there are many answers to it: in some fields of study and occupations women do particularly well in relation to men, in others they do not fare so well, and in still others they are in between.

Data and methodology

In 1993, the National Science Foundation surveyed a sample of 215,000 persons under age 75 who reported in the 1990 census that they had a bachelor's or higher degree as of April 1990.[1] Survey sampling rates varied by occupation reported. Data on earnings are considered statistically reliable for scientific and technical major fields of study with an employment of about 3,000 or more and for nonscientific majors with about 6,000 or more. This article includes only data at that level of reliability.

Earnings data from the survey were available only for full-time wage and salary workers. In some occupations, many graduates were self-employed. For these occupations, and for the majors leading to them, the earnings shown may differ from the earnings of all graduates as a whole, and the comparisons between women and men also may differ. Among the occupations most affected in this manner are psychologists; lawyers; writers, artists, and entertainers; salesworkers, except retail; health professionals; and architects.

To limit biases introduced by differences in the age distribution of women and men in specific fields of study, comparisons are made within three age groups: young (25–34), midcareer (35–44), and older (45–64) workers.[2] Earnings are analyzed separately for holders of bachelor's, master's, doctoral, and professional degrees, resulting in comparisons of men's and women's earnings by major field of study for 12 age and degree-level groups.[3] Data were collected for about 150 major fields or subfields of study, as well as 125 occupations. To meet statistical reliability requirements and make the presentation more manageable, some fields or subfields of study and some occupations were aggregated for the analysis presented in this article, reducing the number of fields analyzed to 29 and the number of occupations to 25. Therefore, observed differences in earnings between women and

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men by major field also may reflect different patterns of majors within each of the 29 groups. Similarly, differences in earnings within the 25 occupations may reflect differences in occupational patterns.[4]

The methodology used in this article is a variant of that used in many earlier studies;[5] however, the purpose of most of those studies was to calculate the effect of sex discrimination on earnings differences. The analyses examined numerous objective characteristics of women and men associated with earnings and showed how much of the observed earnings differences were attributable to the objective differences, with the remainder assumed to be the result of sex discrimination. By contrast, this article focuses only on two characteristics—major field of study and occupation—and controls for age and degree level. Data are presented so as to highlight the effects on earnings of women's choices of field of study and occupation. Data using other characteristics covered in the National Science Foundation survey that might affect earnings are not examined. Accounting for these could explain more of the observed difference, or they might show that the data presented here understate differences between comparable groups of women and men.[6]

Median earnings of women

Median earnings of women compared with those of men of the same age group and degree level.

Some of the differential in earnings between men and women can be accounted for by age and educational attainment. For example, women college graduates aged 25 to 64 had median annual earnings that were 73 percent as high as men's—$34,093, compared with $46,605. In part, this earnings differential is caused by a higher proportion of working women than men being in the young age group and a lower proportion being in the older age group, where earnings tend to peak, reflecting returns to experience. Also, as the following tabulation of the percent distribution of men and women college graduates aged 25 to 64, by age and degree level, in 1993 shows, women were less likely than men to hold doctoral and professional degrees that tend to command high wages, but were more likely to hold master's and bachelor's degrees:

	Men	*Women*
Age:		
25–64	100	100
25–34	21	28
35–44	37	37
45–64	41	35
Degree level:		
All degrees	100	100
Bachelor's degree	62	64
Master's degree	24	30
Doctoral degree	5	3
Professional degree	9	4

Women's median earnings were greater than 73 percent of men's earnings in 9 of 12 comparisons, covering 78 percent of all women. Exceptions were midcareer professional-degree holders, 73 percent; older professional-degree holders, 67 percent; and older bachelor's-degree holders, 65 percent. (See table 1.) Younger women's earnings ranged from 79 percent to 85 percent of men's, midcareer women's from 73 percent to 82 percent, and older women's from 65 percent to 80 percent.

Median earnings of women compared with those of men with the same major field of study and of the same age group and degree level.

When the major field of study was considered, women's earnings were generally even closer to the earnings of men. For example, in all major fields taken as a whole, median earnings for young women graduates with a bachelor's degree were 83 percent as much as the median for young men. Yet, in each of 23 major fields of study with statistically reliable data for both women and men, median earnings of women were more than 83 percent of men's earnings. (See table 1.) Within all 12 age-and-degree-level groups, women's earnings comparisons were greater than the comparisons for all major fields taken as a whole in 117 of 130 major fields, accounting for 96 percent of all employed women in these fields.[7]

The values of the 130 comparisons varied widely. Women's median earnings were 100 percent or more of men's in 11, but these had only 2 percent of women's employment. In about half the comparisons (68, or 52 percent), accounting for almost half (48 percent) of employment in the 130 comparisons, women's earnings were at least 87 percent of men's. However, the proportion of the 130 comparisons meeting this criterion, and of women in these comparisons, varied by age group and by degree level, as shown in the following tabulation:

	Percent of comparisons	*Percent of employment*
Age:		
25 to 64	52	48
25 to 34	83	68
35 to 44	47	42
45 to 64	35	38
Degree level:		
All levels	52	48
Bachelor's degree	49	35
Master's degree	61	81
Doctoral degree	67	70
Professional degree	0	0

In general, the proportions of women earning 87 or more percent of men's earnings increased with degree level, except for those with professional degrees, and decreased with age. Among older women with a bachelor's degree, 23 percent of comparisons met the 87-percent criterion, but these cases included only 8 percent of the women.

Table 1. Median earnings of women as a percent of men's earnings and percent distribution of employment, by major field of study, degree level, and age group, 1993

Major field of study and degree level	Age 25–34				
	Median annual earnings		Women's earnings as percent of men's in same major	Percent distribution[1]	
	Women	Men		Women	Men
Bachelor's degree					
All major fields	$29,660	$35,694	83	100.0	100.0
Accounting	35,744	39,097	91	7.7	7.8
Agriculture	28,177	31,830	89	1.1	2.3
Architecture/environmental design	31,370	33,048	95	.5	1.1
Biological/life sciences	29,401	33,129	89	2.9	–
Business, except accounting	30,163	34,938	86	21.1	26.3
Chemistry	34,506	35,398	97	.6	.8
Communications	27,317	30,768	89	7.2	5.0
Computer and information sciences	38,966	41,314	94	3.6	6.0
Criminal justice/protective service	26,037	29,401	89	1.2	1.7
Economics	33,597	36,656	92	1.3	2.1
Education, including physical education	24,276	26,366	92	13.0	3.7
Engineering	43,274	43,518	99	2.6	14.5
Engineering-related technologies	36,300	38,688	94	.3	3.3
English language and literature	27,388	28,503	96	3.0	1.4
Foreign languages and linguistics	29,079	28,832	101	1.2	.4
Health/medical technologies	32,526	–	–	.9	–
History	25,989	30,418	85	1.1	1.7
Liberal arts/general studies	30,672	31,386	98	1.2	.8
Mathematics	35,052	36,828	95	1.3	1.7
Nursing	35,923	–	–	4.7	–
Pharmacy	47,506	48,979	97	.5	.5
Political science and government	28,507	33,271	86	2.1	2.7
Psychology	26,339	30,657	86	4.3	1.7
Social work	23,333	–	–	1.3	–
Sociology	25,763	29,142	88	1.6	.8
Theology, philosophy, and religion	–	–	–	–	–
Visual and performing arts	24,643	25,633	96	5.1	3.3
Master's degree					
All major fields	33,461	42,359	79	100	100
Accounting	–	–	–	–	–
Agriculture	–	–	–	–	–
Architecture/environmental design	–	–	–	–	–
Biological/life sciences	32,296	25,468	127	2.3	1.5
Business, except accounting	43,697	49,066	89	19.3	33.2
Chemistry	–	–	–	–	–
Communications	32,214	–	–	2.3	–
Computer and information sciences	47,852	49,352	97	2.5	5.5
Economics	–	–	–	–	–
Education, including physical education	29,672	29,951	99	32.0	8.4
Engineering	45,824	47,407	97	2.7	18.4
English language and literature	–	–	–	–	–
Foreign languages and linguistics	–	–	–	–	–
History	–	–	–	–	–
Mathematics	39,455	44,319	89	.9	1.6
Psychology	29,517	29,477	100	4.2	2.1
Social work	30,025	31,203	96	4.8	.8
Sociology	–	–	–	–	–
Theology, philosophy, and religion	–	–	–	–	–
Visual and performing arts	28,382	29,361	97	2.8	2.5
Doctoral degree					
All major fields	36,285	42,860	85	100.0	100.0
Biological/life sciences	24,422	27,223	90	22.8	14.2
Chemistry	–	–	–	–	–
Education, including physical education	–	–	–	–	–
Engineering, mathematics, and computer science	–	–	–	–	–
English language and literature	–	–	–	–	–
Foreign languages and linguistics	–	–	–	–	–
Psychology	–	–	–	–	–
Sociology	–	–	–	–	–
Professional degree					
All major fields	40,357	48,320	84	100.0	100.0
Law	43,453	51,494	84	53.3	49.3
Medicine, including dentistry, optometry, osteopathy, podiatry, and veterinary	35,684	41,633	86	37.3	42.9

See footnotes at end of table.

Table 1. Continued—Median earnings of women as a percent of men's earnings and percent distribution of employment, by major field of study, degree level, and age group, 1993

Major field of study and degree level	Age 35–44				
	Median annual earnings		Women's earnings as percent of men's in same major	Percent distribution[1]	
	Women	Men		Women	Men
Bachelor's degree					
All major fields	$32,155	$43,200	74	100.0	100.0
Accounting	39,843	49,502	80	4.9	7.8
Agriculture	28,752	36,578	79	.8	2.4
Architecture/environmental design	46,356	42,602	109	.3	1.3
Biological/life sciences	34,245	41,179	83	3.7	3.8
Business, except accounting	34,638	44,867	77	10.6	23.0
Chemistry	37,501	44,994	83	.5	1.1
Communications	34,102	38,912	88	3.4	3.4
Computer and information sciences	43,757	50,510	87	1.4	2.7
Criminal justice/protective service	31,818	40,149	79	.8	1.5
Economics	49,175	49,378	100	.6	1.8
Education, including physical education	27,988	34,470	81	24.5	7.0
Engineering	49,072	53,287	92	1.3	11.7
Engineering-related technologies	–	–	–	–	–
English language and literature	30,296	38,297	79	4.0	2.0
Foreign languages and linguistics	32,653	33,778	97	1.7	.4
Health/medical technologies	35,526	36,269	98	1.5	.3
History	30,553	38,095	80	1.8	2.8
Liberal arts/general studies	32,073	39,625	81	1.3	.8
Mathematics	37,534	51,580	73	1.6	1.8
Nursing	40,928	44,680	92	6.9	.4
Pharmacy	48,428	50,480	96	.7	.9
Political science and government	31,759	41,023	77	1.4	2.4
Psychology	32,301	40,718	79	4.4	3.1
Social work	28,593	32,174	89	2.1	.4
Sociology	29,532	37,250	79	3.1	1.7
Theology, philosophy, and religion	25,787	31,849	81	.4	1.4
Visual and performing arts	29,604	32,969	90	5.8	3.5
Master's degree					
All major fields	37,579	49,770	76	100.0	100.0
Accounting	50,053	58,435	86	1.1	2.3
Agriculture	33,422	42,145	79	.6	.9
Architecture/environmental design	45,063	44,515	101	.5	1.5
Biological/life sciences	38,695	40,822	95	1.7	1.6
Business, except accounting	51,809	60,386	86	11.3	29.9
Chemistry	–	–	–	–	–
Communications	39,417	53,013	74	1.4	1.3
Computer and information sciences	51,273	57,274	90	1.8	3.8
Economics	38,261	49,955	77	.4	.7
Education, including physical education	35,128	39,237	90	43.7	17.8
Engineering	54,380	59,404	92	1.3	10.9
English language and literature	35,412	34,159	104	1.5	1.1
Foreign languages and linguistics	34,716	–	–	.9	–
History	–	–	–	–	–
Mathematics	31,902	51,773	62	1.0	1.2
Psychology	34,747	38,670	90	4.7	2.8
Social work	33,993	40,064	85	4.1	1.6
Sociology	–	–	–	–	–
Theology, philosophy, and religion	31,487	30,400	104	1.0	4.8
Visual and performing arts	30,523	35,058	87	2.8	2.8
Doctoral degree					
All major fields	43,384	52,991	82	100.0	100.0
Biological/life sciences	40,661	49,271	83	17.1	14.4
Chemistry	59,173	62,706	94	3.8	9.1
Education, including physical education	41,824	47,807	87	16.3	7.8
Engineering, mathematics, and computer science	62,995	62,194	101	4.7	17.6
English language and literature	–	–	–	–	–
Foreign languages and linguistics	–	–	–	–	–
Psychology	44,889	55,155	81	16.0	8.3
Sociology	–	–	–	–	–
Professional degree					
All major fields	59,536	82,017	73	100.0	100.0
Law	57,182	70,164	82	53.2	45.2
Medicine, including dentistry, optometry, osteopathy, podiatry, and veterinary	81,227	100,610	81	34.2	44.0

See footnotes at end of table.

Table 1. Continued—Median earnings of women as a percent of men's earnings and percent distribution of employment, by major field of study, degree level, and age group, 1993

Major field of study and degree level	Age 45–64				
	Median annual earnings		Women's earnings as percent of men's in same major	Percent distribution[1]	
	Women	Men		Women	Men
Bachelor's degree					
All major fields	$32,093	$49,392	65	100.0	100.0
Accounting	35,254	54,745	64	3.4	8.7
Agriculture	–	–	–	–	–
Architecture/environmental design	–	–	–	–	–
Biological/life sciences	32,715	43,260	76	2.6	2.5
Business, except accounting	33,613	50,897	66	7.3	24.5
Chemistry	36,671	52,149	70	.9	1.8
Communications	37,418	49,985	75	1.5	1.9
Computer and information sciences	36,336	51,945	70	.6	.8
Criminal justice/protective service	–	–	–	–	–
Economics	42,743	52,264	82	1.5	.8
Education, including physical education	30,010	38,313	78	34.8	7.6
Engineering	38,707	59,215	65	.5	14.4
Engineering-related technologies	–	–	–	–	–
English language and literature	31,740	43,193	73	6.3	2.0
Foreign languages and linguistics	32,840	37,851	87	2.6	.6
Health/medical technologies	36,038	37,448	96	1.4	.2
History	30,283	42,321	72	2.5	3.3
Liberal arts/general studies	36,807	43,213	85	1.5	.8
Mathematics	34,718	56,389	62	2.2	2.8
Nursing	40,908	–	–	6.3	–
Pharmacy	46,148	51,028	90	.5	1.5
Political science and government	32,255	49,920	65	1.2	2.4
Psychology	32,076	45,514	70	3.2	2.3
Social work	28,953	30,205	96	1.5	.2
Sociology	32,039	45,757	70	3.7	1.8
Theology, philosophy, and religion	33,592	30,516	110	.6	1.8
Visual and performing arts	30,013	36,441	82	5.0	2.1
Master's degree					
All major fields	39,864	51,274	78	100.0	100.0
Accounting	–	–	–	–	–
Agriculture	–	–	–	–	–
Architecture/environmental design	–	–	–	–	–
Biological/life sciences	35,270	43,694	81	1.5	2.1
Business, except accounting	53,703	63,881	84	5.1	24.1
Chemistry	43,304	62,830	69	.5	.7
Communications	42,651	48,091	89	.9	1.0
Computer and information sciences	50,733	64,455	79	.6	1.7
Economics	–	–	–	–	–
Education, including physical education	39,433	45,299	87	52.0	24.8
Engineering	51,144	67,623	76	.3	8.8
English language and literature	36,805	45,352	81	3.3	1.4
Foreign languages and linguistics	40,835	42,036	97	1.7	.6
History	37,523	47,256	79	.8	1.6
Mathematics	42,102	57,842	73	1.2	2.4
Psychology	38,223	43,764	87	5.0	3.1
Social work	38,397	42,153	91	5.2	1.9
Sociology	45,286	44,486	102	.6	.5
Theology, philosophy, and religion	28,249	31,615	89	1.5	5.0
Visual and performing arts	34,520	40,861	84	2.6	2.5
Doctoral degree					
All major fields	49,820	62,247	80	100.0	100.0
Biological/life sciences	57,253	64,814	88	8.6	9.7
Chemistry	–	–	–	–	–
Education, including physical education	49,138	56,479	87	34.3	14.0
Engineering, mathematics, and computer science	–	–	–	–	–
English language and literature	42,273	50,900	83	6.2	3.1
Foreign languages and linguistics	39,220	52,101	75	4.1	2.3
Psychology	51,306	57,221	90	14.5	7.2
Sociology	48,179	49,527	97	3.2	1.5
Professional degree					
All major fields	61,176	91,105	67	100.0	100.0
Law	59,359	85,993	69	51.0	46.0
Medicine, including dentistry, optometry, osteopathy, podiatry, and veterinary	85,825	107,575	80	28.5	43.5

See footnotes at end of table.

Table 1. Continued—Medium earnings of women as a percent of men's earnings and percent distribution of employment, by major field of study, degree level, and age group, 1993

[1] Because not all major fields of study are shown, percent distribution does not add to 100. The numbers of women and men constituting the 100 percent for all major fields at the four degree levels and in the three age groups are as follows. Bachelor's degree: age 25–34—1,729,000 women, 2,006,300 men; age 35–44—1,832,600 women, 2,918,300 men; age 45–64—1,536,400 women, 2,767,200 men. Master's degree: age 25–34—403,700 women, 427,200 men; age 35–44—913,000 women, 1,069,000 men; age 45–64—1,072,900 women, 1,461,500 men. Doctoral degree: age 25–34—23,700 women, 50,700 men; age 35–44—71,900 women, 181,000 men; age 45–64—114,000 women, 401,800 men. Professional degree: age 25–34—99,800 women, 197,500 men; age 35–44—141,400 women, 463,500 men; age 45–64—91,300 women, 532,800 men.

NOTE: Data are for full-time wage and salary workers only. Dashes indicate data or calculation not considered statistically reliable.

SOURCE: Tabulated by the Bureau of Labor Statistics from a National Science Foundation survey conducted by the Bureau of the Census.

In some comparisons, women earned much less than men. For example, among mathematics majors, older women with a bachelor's degree and midcareer women with a master's degree had median earnings only 62 percent as much as men's earnings in the same categories. Younger and midcareer women with a bachelor's degree in computer science engineering, foreign languages, all four health majors, visual arts, and the major field of theology, philosophy, and religion did particularly well in relation to men in those same fields. Women with master's degrees in biological/life sciences, business, and education also did relatively well. Within some fields of study, earnings comparisons varied significantly by degree level. For instance, midcareer women with a bachelor's degree in economics did quite well in comparison to midcareer men with the same degree, but those with a master's degree did poorly, in fact earning much less than women with a bachelor's degree in the subject.

In some majors, comparisons among women varied widely by age group. Older women with bachelor's degrees in four majors—engineering, mathematics, accounting, and chemistry—had earnings comparisons 25 percentage points or more below those of young women with bachelor's degrees in the same four majors. The reason is clear: among men, the earnings of older workers were much greater than those of younger workers, while among women, earnings of older workers were lower than those of younger workers in three out of the aforementioned four majors; only in chemistry were they higher, and even then, just slightly. In fact, in most cases, older women did less well relative to men than did younger women. This is due in part to "vintage" effects that may not be as strong among women in the younger cohort as they age. For example, older women are more likely than younger women to have delayed their entry into the full-time labor force and are less likely to have had the benefit of equal employment opportunity policies when they were young.[8]

Women do better when their major fields are taken into account because women's distribution of employment, by field of study, differs significantly from men's. (See table 1.) What is highly significant is that almost all of the major fields in which men were concentrated had above-average median earnings, while those majors in which women were concentrated were characterized by below-average medians. Men were more likely to have degrees in engineering; engineering technology; computer science; architecture; mathematics; economics; theology, philosophy, and religion; and business, and women were more likely to have degrees in social work, psychology, nursing, medical/health technologies, physical therapy, and education. Notably, among midcareer workers with a bachelor's degree, 24.5 percent of women had majored in the below-average-paying field of education, compared with 7 percent of men. In contrast, only 1.3 percent of women, but 11.7 percent of men, were above-average-paid engineering graduates.

Among younger women, field-of-study patterns were more similar to men's. These patterns reflect women's dramatic shift into business, communications, computer science, and engineering majors and out of education and liberal arts majors (the latter, like education, also preparation for teaching in many cases) during the 1970s and 1980s.[9] Among bachelor's-degree graduates, only 10.7 percent of older, but 28.8 percent of younger, women had a degree in business—either in accounting or in some other business field—while the proportion of men remained unchanged with age, at a third. Younger women were still much more likely than men to have majored in education or social work, however, and much less likely to have majored in engineering or computer science.[10]

Because women were much more likely than men to have a low-paying major, such majors have a greater weight in earnings calculations for all women than for all men; and, correspondingly, high-earnings majors have a lesser weight. As noted earlier, women's calculations also tend to be somewhat more heavily weighted by younger workers and less heavily weighted by those with a doctoral or professional degree. When median earnings of women are compared with those of men of the same age group, degree level, and field of study, they are not weighted and therefore are closer to men's.

A simulation was developed to show what the median earnings for all women would have been if women had the same age, degree-level, and field-of-study distribution as men—that is, the same weights, but with earnings in each field-of-study, age, and degree-level group unchanged. In other words, women would be just as likely as men to have a high-paying or low-paying major, to be in the older or younger age group, and to have a professional or a bachelor's degree.[11] The resulting syn-

Table 2. Median earnings of women aged 35–44, as a percent of men's earnings, by major field of study, occupation, and degree level, and percent distribution of employment, by occupation, 1993

Major field of study, occupation, and degree level	Median annual earnings		Women's earnings as percent of men's in same major and occupation	Percent distribution[1]	
	Women	Men		Women	Men
Bachelor's degree					
All major fields of study	$32,155	$43,200	74	100.0	100.0
Accounting:					
All occupations[2]	39,843	49,502	80	4.9	7.8
Accountants, auditors, and other financial specialists	41,121	47,115	87	59.2	47.6
Clerical and administrative support occupations	22,961	31,284	73	7.1	2.6
Managers, executives, and administrators	49,265	57,800	85	15.5	27.1
Biological/life sciences:					
All occupations	34,245	41,179	83	3.7	3.8
Biological/life scientists	35,468	34,246	104	13.0	7.3
Health technologists and technicians	33,398	34,521	97	15.1	4.8
Managers, executives, and administrators	49,307	52,096	95	9.2	18.6
Business, except accounting:					
All occupations	34,638	44,867	77	10.6	23.0
Accountants, auditors, and other financial specialists	35,606	46,384	77	14.0	8.3
Buyers, management analysts, and other management-related occupations	35,208	42,199	83	9.5	9.5
Clerical and administrative support occupations	23,270	29,252	80	16.6	2.9
Computer occupations, excluding engineers	41,756	46,733	89	5.4	4.3
Managers, executives, and administrators	43,624	55,192	79	14.0	27.9
Personnel, training, and labor relations specialists	39,386	47,893	82	5.1	1.4
Sales and marketing occupations, except retail	40,377	48,456	83	17.3	22.6
Communications:					
All occupations	34,102	38,912	88	3.4	3.4
Artists, broadcasters, editors, public relations specialists, and writers	34,198	37,071	92	26.5	25.7
Managers and management-related occupations	42,149	47,120	89	17.2	24.4
Sales and marketing occupations, except retail	49,322	37,878	130	19.8	18.5
Computer and information sciences:					
All occupations	43,757	50,510	87	1.4	2.7
Computer occupations, excluding engineers	43,836	49,967	88	66.0	62.6
Engineers, including computer engineers	48,503	55,783	87	11.2	13.8
Education, including physical education:					
All occupations	27,988	34,470	81	24.5	7.0
Buyers, management analysts, and other management-related occupations	31,450	40,530	78	3.7	6.2
Computer occupations, excluding engineers	38,288	46,576	82	1.6	3.1
Teachers, elementary through grade 12	28,189	30,626	92	50.5	32.4
Managers, executives, and administrators	35,134	48,431	73	4.8	11.2
Sales and marketing occupations, except retail	35,231	47,168	75	4.3	11.5
Engineering:					
All occupations	49,072	53,287	92	1.3	11.7
Engineers, including computer engineers	49,246	53,134	93	48.9	58.3
Mathematics:					
All occupations	37,534	51,580	73	1.6	1.8
Computer occupations, excluding engineers	45,766	52,411	87	29.4	33.0
Psychology:					
All occupations	32,301	40,718	79	4.4	3.1
Clerical, food and other services, and retail sales	25,984	30,658	85	20.1	12.5
Counselors and social workers	27,724	30,409	91	10.7	7.5
Managers, executives, and administrators	44,528	54,227	82	10.3	15.4
Social workers	27,908	30,866	90	9.6	5.8
Visual and performing arts:					
All occupations	29,604	32,969	90	5.8	3.5
Artists, broadcasters, editors, public relations specialists, and writers	32,174	39,004	82	19.6	21.7
Clerical, food and other services, and retail sales	25,375	27,766	91	19.9	11.7
Teachers, elementary through grade 12	30,736	30,930	99	12.9	11.0
Managers, executives, and administrators	38,416	44,457	86	9.4	9.5

See footnotes at end of table.

Table 2. Continued—Median earnings of women aged 35–44, as a percent of men's earnings, by major field of study, occupation, and degree level, and percent distribution of employment, by occupation, 1993

Major field of study, occupation, and degree level	Median annual earnings		Women's earnings as percent of men's in same major and occupation	Percent distribution[1]	
	Women	Men		Women	Men
Master's degree					
All major fields of study	$37,579	$49,770	76	100.0	100.0
Biological/life sciences:					
All occupations	38,695	40,839	95	1.7	1.6
Biological/life scientists	42,126	40,391	104	22.5	33.7
Business, except accounting:					
All occupations	51,824	60,364	86	11.3	29.9
Accountants, auditors, and other financial specialists	51,575	57,319	90	18.1	16.8
Buyers, management analysts, and other management-related occupations	57,468	55,919	103	7.3	6.7
Computer occupations, excluding engineers	49,047	57,349	86	4.3	5.5
Managers, executives, and administrators	62,749	69,270	91	27.6	37.3
Sales and marketing occupations, except retail	59,854	63,427	94	11.5	13.3
Computer and information sciences:					
All occupations	51,273	57,274	90	1.8	3.8
Computer occupations, excluding engineers	49,164	55,340	89	49.7	53.6
Engineers, including computer engineers	55,868	61,167	91	21.5	24.7
Education, including physical education:					
All occupations	35,128	39,229	90	43.7	17.8
Counselors, educational and vocational	34,202	36,196	94	5.7	2.8
Teachers, elementary through grade 12	34,511	38,169	90	67.2	49.8
Managers, executives, and administrators	41,731	44,876	93	7.7	23.0
Postsecondary teachers	30,144	33,297	91	2.2	4.6
Engineering:					
All occupations	54,380	59,382	92	1.3	10.9
Engineers, including computer engineers	55,597	58,407	95	54.8	64.4
Psychology:					
All occupations	34,747	38,620	90	4.7	2.8
Counselors and social workers	32,023	34,321	93	26.6	17.7
Social scientists	32,841	32,559	101	17.1	22.1
Social work:					
All occupations	33,993	40,033	85	4.1	1.6
Social workers	33,127	38,532	86	66.0	61.3

[1]The numbers constituting the 100 percent for all major fields of study at the bachelor's-degree level are 1,832,600 women and 2,918,300 men. At the master's-degree level, the numbers are 913,700 women and 1,069,000 men. In each of the major fields, the men's (women's) figure for all occupations is the percent of the total men (women) employed in all major fields of study; the men's (women's) figure for the separate suboccupations is the percent of the men's (women's) all-occupations figure in the major.

[2]Data for all ocupations are from table 1.

NOTE: In occupations with few observations, several occupations were combined. Management-related occupations include two occupational groups: buyers, management analysts, and other management-related occupations; and personnel, training, and labor relations specialists. Data are for full-time wage and salary workers.

SOURCE: Bureau of the Census.

thetic distribution of women's earnings has a median of $38,068, 82 percent of the $46,605 earned by men. As was observed earlier, the actual women's median, $34,093, is 73 percent of men's earnings. In other words, adjusting women's age, degree-level, and field-of-study distributions reduces the observed gap in earnings by about 9 percentage points, or approximately one-third.

Median earnings of women compared with those of men with the same occupation and major.

When occupation also was considered, women's median earnings generally were even closer to men's. To make the data more manageable, the analysis was limited to midcareer bachelor's- and master's-degree graduates. Of the 26 bachelor's-degree field comparisons shown in table 1, 10 yielded statistically reliable occupational earnings; of the 16 master's combinations, 7 did. Together, the two degree levels produced a total of 49 major-field and occupation comparisons. (See table 2.) In 38 of these, women did better than in the all-occupation comparisons between women and men; these 38 comparisons accounted for 70 percent of women in the analysis. In one case, namely, holders of master's degrees in education who were employed as teachers, accounting for 20 percent of women in the analysis, women earned the same as did all women education majors.

The preceding comparisons spanned a wide range. In five

cases—bachelor's-degree communications majors employed as sales and marketing workers, master's-degree business majors employed as buyers, master's-degree psychology majors employed as social scientists, and biology majors at both levels employed as biologists—women earned more than men with the same occupation and major.

In some cases, adding the occupational comparison provided very different percentages. Earnings of the sales and marketing workers just noted, at 130 percent of men's earnings, were 42 percentage points above the earnings ratio for all women to all men communications majors, and the bachelor's-degree biologists' men-to-women's earnings ratio was 21 points above that of all biology majors as a whole. On the other hand, bachelor's-degree education majors employed as managers earned only 73 percent as much as men managers, 8 points below the 81 percent for all-women-to-all-men education majors. Women visual and performing arts majors employed as artists, broadcasters, editors, public relations specialists, and writers also had ratios 8 points lower than women in all occupations combined, and accounting majors employed as clerical workers were 7 points lower than women in all occupations combined.

Women generally did even better, when compared to men in the same occupation, because their occupational patterns, like their field-of-study patterns, differed so from men's. Women were less likely than men to be in occupations with above-average earnings, such as sales and marketing workers (except retail) or managers. (See table 2.) Women were more likely than men to be in occupations with below-average earnings, such as teachers, social workers, health technicians, retail sales workers, or clerical, food, and other service workers. Among education majors with bachelor's degrees, women were less than half as likely to be managers as were men, and among master's-degree holders, women were only about a third as likely. At the bachelor's-degree level, women education majors were also much less likely to be in computer or sales and marketing occupations, but were more likely to be elementary-through-12th-grade teachers.

The differences in occupational patterns noted in this article probably reflect different preferences between men and women. However, the underrepresentation of women in some occupations may also reflect discrimination in hiring and, particularly in the case of managers, promotion. Also, as noted earlier, there may be "vintage" effects that do not fully carry over for younger women as they enter the mid-career group.[12]

THE CHOICE OF BOTH OCCUPATION AND MAJOR are significant factors in determining a person's earnings. Although women college graduates earned less than men did overall, the earnings gap lessens significantly in most cases when women are compared with men with similar educational backgrounds and similar occupations. This article has highlighted majors and occupations in which women do particularly well, or particularly poorly, in relation to men. Much of the difference between women's and men's earnings, however, is not explained by the data presented. More might be explained by accounting for other objective differences.[13] However, it was not the purpose of the article to do so, or to estimate the difference in men's and women's earnings due to past or existing discrimination in hiring and promotion or to lower pay for equal work. □

Footnotes

[1] Individuals who received a bachelor's degree after April 1990 are not included. The survey is the largest one available that has collected detailed information about college graduates' employment characteristics, such as earnings and occupation, by major field of study.

[2] These ranges divide graduates with bachelor's degrees into fairly equal-sized groups. For those with advanced degrees, however, there are fewer in the younger group. The 25–34 age group has fewer workers aged 25 and 26, because the survey population included only individuals who had at least a bachelor's degree 3 years earlier, at the time of the 1990 census. As a result, the median earnings for this age group are biased upward. Graduates aged 65 and older are excluded, because they are often at least partially retired.

[3] Although the degree-level separations should account for most differences in the quantity of education received, data on college courses taken after achieving the highest degree were not considered. Therefore, those who, for example, had completed all requirements for the doctorate except a dissertation would generally show up as master's degree holders. On-the-job and other nonacademic training, for which there were few data, also may affect earnings.

[4] For example, education comprises 12 subfields plus an "other" category, including education administration, computer teacher education, counselor education, physical education, educational psychology, and elementary teacher education. Also, note that the occupational category of biological and life scientists includes agricultural scientists, biochemists, biological scientists (for instance, botanists and zoologists), forestry or conservation scientists, medical scientists (excluding practitioners), biological and life science technologists and technicians, and an "other" category. Further, there may be differences between women and men in the types of courses taken, even within the same major field. (For a discussion of these differences and a more general discussion of differences in fields of study and occupations entered, see Clifford Adelman, "Lessons of a Generation: Education and Work in the Lives of the High School Class of 1972," *Women at Thirty-something: Paradoxes of Attainment* (San Francisco, Jossey-Bass, 1994), chapter 2, pp. 36–82.)

[5] See, for example, Alan S. Blinder, "Wage Discrimination: Reduced Form and Structural Estimates," *Journal of Human Resources*, Fall 1973, pp. 436–55; Ronald Oaxaca, "Male–Female Wage Differentials in Urban Labor Markets," *International Economic Review*, October 1973, pp. 693–703; Mary Corcoran and Greg J. Duncan, "Work History, Labor Force Attachment, and Earnings Differences between the Races and Sexes," *Journal of Human Resources*, Winter 1979, pp. 3–20; Thomas N. Daymont and Paul J. Andrisani, "Job Preferences, College Major, and the Gender Gap in Earnings," *Journal of Human Resources*, Summer 1984, pp. 408–28; and Barry Gerhart, "Gender Differences in Current and Starting Salaries: The Role of Performance, College Major, and Job Title," *Industrial and Labor Relations Review*, April 1990, pp. 418–31.

[6] Among the characteristics not examined, but potentially relevant, are

having children living at home, marital status, type of employer, type of industry, and geographic location. However, some data on earnings of midcareer bachelor's-degree women without children are presented in footnote 13. Other factors not included in the survey, such as grade-point average in school or hours worked per week, also may be related to annual earnings.

[7] The 130 fields included 83 percent of the 8.03 million women in the survey population.

[8] It is also possible to use data in table 1 to compare earnings of women, by major, to earnings of the median for all men at the same degree level in the same age group. Not surprisingly, women in well-paying majors such as engineering, pharmacy, and business administration (at the master's level) had median earnings greater than those of the median man, and women in education, social work, and other poorly paying majors had earnings much less than those of the median man.

[9] This shift occurred not only because of greater opportunities for women outside of traditional occupations, but also because of the sharp drop in the number of job openings in teaching during the early 1970s.

[10] For further discussion of this point, see Eric Eide, "College Major Choice and Changes in the Gender Wage Gap," *Contemporary Economic Policy*, April 1994, pp. 55–64.

[11] The weighting procedure, with an example using the distribution of midcareer workers with bachelor's degrees in education and engineering, cited several paragraphs earlier, is as follows. Midcareer women with bachelor's degrees in the high-paying field of engineering (median earnings of $49,072) made up less than three-tenths of 1 percent of women college graduates, at all levels, while men in this category made up almost 2.8 percent of all men. Therefore, the earnings of each woman respondent with an engineering major were weighted by a factor of 9.63, increasing the percentage of these women engineering majors to almost 2.8 percent of all women. Midcareer women with bachelor's degrees in low-paying education (median earnings of $27,988) were about 5.6 percent of women college graduates, at all levels, while men in this category were only about 1.7 percent of all men. Therefore, the earnings of each woman respondent with an education major were weighted by a factor of .297, reducing the percentage of these women education majors to about 1.7 percent of all women. Earnings of women respondents with other majors and degree levels, and in other age groups, were similarly weighted.

[12] Most of the women who earned as much as, or more than, the median man with the same major were managers.

[13] For example, women's earnings, and therefore the comparisons with men, are clearly affected by having responsibility for children. For instance, midcareer bachelor's-degree women without children living at home earned $34,293, while all midcareer women with bachelor's degrees had median earnings of $32,155, 74 percent of men's earnings. (See table 2.) Thus, if the earnings of women without children, rather than all women, had been used, then the earnings of midcareer bachelor's-degree women would have been 80 percent. The issue is complex, however, because women without children may be more likely both to have majored in a high-paying field and to be employed in a high-paying occupation. Furthermore, although men's earnings are also affected by the presence of children, for men, having children living at home is associated with *higher*, and not lower, earnings. Furthermore, a question about the number of years of professional work experience was asked in the survey, and the responses might have been used in place of the age-group specification. However, due to respondents' problems interpreting "professional work experience," data on the detailed major field of study were not considered reliable. Nonetheless, a comparison of earnings ratios by age group with earnings ratios by years of professional experience showed only slightly higher ratios for young and midcareer women with bachelor's degrees, but a somewhat higher ratio for older women. This suggests that young and midcareer women had almost as much professional experience as men in the same category, but that older women did not.

Zimbabwe's informal sector

Latham Shinder

The government of Zimbabwe and its citizens have serious concerns regarding the country's joblessness and negative economic growth. The government also is concerned about the mushrooming growth of underground businesses and the resulting loss in tax revenues. Are the solutions to the two problems necessarily in conflict? It is possible that the first goal—employment growth—is much more important than the second—suppressing the underground businesses (that is, the informal economy). Growth of the informal economy is an important part of the future of all developing nations for one primary reason: their present high unemployment rate will crush both local markets and foreign trade.

The informal economy defined

Informal economies have been defined as economic activity not included in a nation's data on gross domestic product, and not subject to formal contracts, licensing, and taxation. These businesses generally rely on indigenous resources, small-scale operations, and unregulated and competitive markets. In addition, skills may be obtained outside the formal educational system.[1] To simplify the concept, most often the informal economy refers to owner/operator businesses of the urban poor, unskilled or semiskilled workers, and the chronic unemployed. By definition, these workers and entrepreneurs are on the fringe of, if not outside, social and fiscal legality.[2]

Zimbabwe's reduced tax revenues and increasing budget deficits are accelerating the decay of its infrastructure—critical to maintaining and increasing foreign trade and a high standard of living. Reduced tax revenues are becoming commonplace within many African countries. Southern African nations experience weak economic growth performance and their external viability is undermined by high debts. As a result, these nations face rampant unemployment and deteriorating living standards.[3] Only 18 percent of Zimbabwe's 85,237 kilometers of highway are paved. And the communications system, once considered the best in Africa, now suffers from poor maintenance and only supplies 247,000 telephones to a population of 10.9 million. International and fiscal entities are encouraging cash-poor African countries to develop a new tax base in the only economic sector with any dynamism—the informal economy.

Zimbabwe is not the only African nation to confront high rates of unemployment. For example, unemployment rates in Benin are equal to those of Zimbabwe, where a recession in the formal economy has caused the informal economy to flourish in recent years. Informal employment is estimated to account for 65 percent of Benin's overall employment.[4] In addition, South Africa has a 40-percent unemployment rate. Although the wages of skilled and semiskilled black workers are only 70 percent of those of white workers, it is still double the wages of such workers in Taiwan, South Korea, and the Philippines, taking into account cost-of-living differences.[5] The argument is made that in South Africa, like in Zimbabwe, rates of unemployment are extremely high, and the emphasis must be on first increasing employment and then increasing wages and productivity.

The informal economy is efficient at generating job opportunities at a very low cost for at least some segments of the population.[6] In some African nations, self-employment and micro-enterprise activity in the informal economy in the late 1980s absorbed some workers who had lost their jobs in the formal economy.

Jobs in Zimbabwe's formal economy (including civil service jobs, agriculture, manufacturing, and export operations) are showing negative growth, while some jobs in the informal economy (including small businesses, vendors, and illegal trade operations) are showing positive growth. Jobs in the informal economy are difficult for the government to regulate and monitor and, hence, may be more difficult for the government to encourage. Furthermore, these businesses generally do not pay taxes, giving the government more reason to discourage growth in the informal sector.

Although most owners and workers in the informal sector pay no taxes, they and their families spend income in the formal economy. Therefore, an increase in jobs in the informal economy may have a positive effect on jobs in the formal economy. Although large enterprises in the informal economy tend to use imported technology and a relatively small labor force, the smaller enterprises are more labor intensive and likely to use locally manufactured equipment.[7] With the high unemployment in Zimbabwe, job creation, particularly that focusing on the smaller enterprises in the informal economy, may be an important priority.

Informal versus formal

Richard Hosier defines two philosophical concepts relative to the informal economy's role in society.[8] According to Hosier, the two conflicting concepts are the "evolutionist" and the "involutionist" perspectives. Evolutionists basically believe that the informal economy has the ability to evolve or grow, and can be used to alleviate poverty. They also view the informal economy as a reality that will continue to exist and that governments should strive to support, rather than hinder, its growth.

Latham Shinder recently returned to the United States from conducting research at the University of Zimbabwe. The views expressed in this report are the author's and do not represent those of the Bureau of Labor Statistics.

Involutionists believe the informal economy to be a system of labor exploitation and will not lead to improved standards of living for the working poor. This concept holds that any promotion of the informal economy will further increase the wage inequality between the formal economy's wage earners, managers, and capitalists, and low-paid subsistence workers. Although evolutionists and involutionists seem to have opposite views, there are elements of truth in both perspectives. Even if the informal economy's long-term permanence and growth potential are proven unstable, or even undesirable, the short-term (3 to 10 years) effects will be positive.

In South Africa, the informal economy is estimated at 16 to 40 percent of gross domestic product.[9] The majority of those surveyed in the township of Khayelitsha began their own business out of necessity, as they were unemployed or in need of additional income. In addition, almost half of businesses in the sample had created employment for at least one nonfamily member.[10] In two cities (Nairobi and Meru, Kenya), approximately 50 percent of all firms interviewed had at least one full-time employee who was not a family member.[11] Of the 30,000 informal businesses assessed in Dakar, Senegal, each employed, on average, just under one additional worker.[12] In Benin, 37 percent of micro-enterprises employ an additional one to four workers.[13] It is clear that informal businesses are capable of supporting and maintaining a work force in addition to the owners/operators and their families.

Many businesses in the United States are discovering the benefits of outsourcing some or all job functions; this concept is not alien to the informal sector in Zimbabwe. In third world countries, industrial "homework" is similar to outsourcing, in that parts of a product are manufactured or assembled at home. Most homework tasks involve simple, unskilled, labor-intensive tasks that require little capital and few tools. Work is unstable and offers no security. Yet, there are a variety of reasons that homework and other employment continue in the informal economy despite these hardships, among which is the fact that often no jobs are available in the formal economy.

Zimbabwe has approximately 200,000 new entrants to the job market each year. Some of them are absorbed by small and medium-sized companies, but the rate of absorption is too low to change unemployment figures.

In many countries, most businesses in the informal economy are illegal under existing laws. Some experts contend that the businesses, along with illegal micro-enterprises, within developing countries may be the only possible source of income for most people in large cities.[14]

Meeting the challenge

High rates of unemployment in Zimbabwe are causing an economic and cultural crisis. Zimbabwe's infrastructure is deteriorating, while the country's human capital is underutilized. Many segments of the population are not satisfied with the current conditions. Given the situation of existing and impending crisis as a result of high unemployment, waiting for analysis of long-term ramifications would amount to negligence on the part of the government. Businesses in the informal economy in most cities are a by-product of inadequate education and training, high rates of unemployment in the formal economy, and the poor and working poor striving to improve their economic conditions. Optimizing the use of the informal sector can have positive short-term effects in alleviating unemployment.

Countries that have been successful at economic growth and reducing poverty have set two specific objectives. First, establish a growth policy that emphasizes employment, utilizing the available abundant resource—the labor pool of the poor. Second, invest in human capital by providing the poor with education and vocational training. In addition, decentralization in policymaking and implementation can dramatically promote employment objectives.

The challenge confronting all self-employed workers in Zimbabwe's informal economy is to make the transition from mere survival to an economically stronger position. Zimbabwe's labor force totals 3.1 million; approximately 74 percent of them are in the agriculture industry, with low pay.[15] If an effective program is established under which full employment is a goal for Zimbabwe and other developing nations, the informal economy is an obvious opportunity. □

Footnotes

[1] Michael H. Morris and Leyland F. Pitt, "Informal Sector Activity as Entrepreneurship," *Journal of Small Business Management*, January 1995, p. 78.

[2] Carlos Maldonado, "Building Networks: An Experiment in Support to Small Urban Producers in Benin," *International Labor Review*, 1993, no. 2, pp. 245–75.

[3] Manoih Esipisu, "Mauritius Lectures Africa on Economic Growth," *Reuthers World Service*, Oct. 23, 1994.

[4] Maldonado, "Building Networks."

[5] Hermann Giliomee, "The ANC stumbles," *New Republic*, Oct. 19, 1992; and I. Abedion and M. DeSmidt, "The Informal Economy in South Africa," *The South African Journal of Economics*, vol. 58, no. 4, 1990, pp. 404–24 .

[6] Meryem Koray, "Employment and Unemployment in Turkey," *International Journal of Manpower*, vol. 12, no. 5, 1993, pp. 15–21.

[7] Malcom Harper, "Enterprise Development in Poorer Nations: The Role of Enterprise in Poor Countries," *Entrepreneurship Theory and Practice*, summer, 1991, pp. 7–11.

[8] Richard H. Hosier, "The Informal Sector in Kenya: Spatial Variation and Development Alternatives," *The Journal of Developing Areas*, July 1987, pp. 383–402.

[9] I. Abedion and M. DeSmidt, "The Informal Economy in South Africia."

[10] Richard H. Hosier, "The Informal Sector in Kenya," pp. 383–402.

[11] *Ibid.*

[12] Harold Lubell and Charbel Zarour, "Resilience Amidst Crisis: The Informal Sector of Dakar," *International Labor Review*, vol. 132, no. 2, 1990, pp. 287–400.

[13] Carlos Maldonado, "Building. Networks."

[14] Malcolm Harper, "Enterprise Development in Poorer Nations."

[15] "Zimbabwe's Economy: Breaking Free?" *The Economist*, Aug. 25, 1990, pp. 36–37.

Gains in job security

The proportion of workers who hold contingent jobs—that is, any job that the worker does not expect to last—declined slightly between February 1995 and February 1997. (See table.) While the Current Population Survey (CPS) supplements used to create these estimates were intended to identify contingent workers—those who do not have an implicit or explicit contract for ongoing employment—the questions are also a useful approach to measuring a general sense of job security.

The broad definition of contingent worker used here includes those with an explicitly temporary job and anyone who does not think they could continue to work for their employer for as long as they wish, even assuming their performance is adequate and that economic conditions stay the same.

The specific questions asked of wage and salary workers[1] were:

1. Some people are in temporary jobs that only last for a limited time or until the completion of a project. Is your job temporary?
2. Provided the economy does not change and your job performance is adequate, can you continue to work for your current employer as long as you wish?

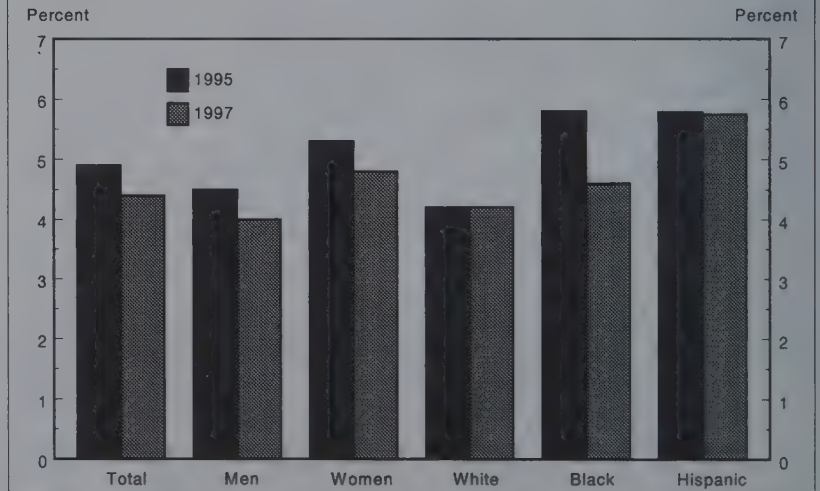
Taken in another light, these questions can be used to measure the worker's sense of job security. In that context, the slight decline in the contingency rate could suggest that job security had increased somewhat in the 2-year period. Whether that conclusion is sound would depend on whether the decline in contingency or "insecurity" is consistent with other data from the survey, is broadly spread among demographic and economic groups, and is supported by other measures of job security.

From within the supplement, data on the reasons for contingent work arrangements provide support for the increasing job security idea. In 1995, 34.7 percent of contingent workers cited economic factors as the reason they were in a contingent work arrangement. The biggest single reason, cited by nearly a quarter of all contingent workers, was that they "could only find this type of employment." In February 1997, fewer than one-fifth of contingent workers were in "the only type of work [they] could find." While the absolute number of workers taking contingent jobs for economic reasons was declining, the number and share citing reasons such as family obligations, flexibility of schedule, and being in school were rising. In 1995, 41 percent of contingent workers reported such personal reasons for accepting such arrangements. By 1997, more than 48 percent of contingent workers cited personal reasons. These comparisons indicate that contingency was somewhat more likely to be voluntary in 1997.

The decline in contingency was fairly widespread. Contingency rates for men and women each declined by half a percentage point, in line with the fall in the total. Among the major race and ethnic groups, however, the entire decline appeared to have occurred among black workers. Their contingency rate fell by a full percentage point, while rates among white and Hispanic workers were virtually unchanged. Among the nine major occupational groups, contingency rates fell in six, rose in two, and was unchanged in one. Among the ten major industry divisions, contingency fell in five, rose in three, and was little changed in two. In general, the fall in "insecurity" was widespread among industries and occupations and evenly spread among men and women.

Analysts have used statistics on tenure with one's current employer and data on displacement to analyze employment security. The most recent report on tenure found that the overall median tenure had risen a bit by the mid-1990s, but the rise was very uneven across gender lines.

Contingent workers as a share of employed, by sex, race, and Hispanic origin, 1995 and 1997



Share of workers who feel their jobs are not secure has declined slightly

"At Issue" was prepared by Richard M. Devens, Jr, of the Office of Publications, Bureau of Labor Statistics

Among men, median tenure fell between 1983 and 1996 in nearly every age group. The median among all men remained flat at about 4.0 years, however, as the age distribution of employed men shifted to older age groups in which workers have longer tenure. Median tenure for women had changed little from 1983 to 1991, but edged up to 3.5 years in 1996.

Taken together, these observations suggest that men could feel slightly less secure while women could feel a bit more secure. The latter observation provides some support for interpreting the contingent worker data as suggesting increasing employment stability, but the former does not. Tenure data, however, must be analyzed carefully in studies of job or employment security. For example, in periods of strong economic growth, median tenure could fall because more job opportunities are available for new entrants to the labor force and experienced workers have better opportunities to take better jobs with new employers. In any case, these comparisons are from a time frame that only partially overlaps that of the contingent worker data.

Worker displacement in the mid-1990s was at a lower level than had been the case earlier in the decade. A total of 2.4 million workers were displaced between 1993 and 1994 from jobs that they had held for at least 3 years. By comparison, about 2.8 million long-tenured workers were displaced in 1991–92. The displacement rates for these two periods were 3.2 percent for 1993–94 and 3.9 percent for 1991–92. This decline could be interpreted as indicating some degree of improved job security as of 1993–94. Also, a slight increase in the re-employment rate among displace workers from 75 to 79 percent, may indicate a modest rise in employment security as well. These data also conform to a general tendency of displacement to rise and fall roughly in step with unemployment. While displacement data are not yet available for the period covered by the contingency supplements, note that jobless rates in the first quarters of 1995 and 1997 were 5.5 and 5.3 percent, respectively.

Contingency rates by occupation and industry, February of 1995 and 1997

(In percent)

Occupation/industry	1995	1997
Total	4.9	4.4
Occupation		
Executive, administrative, and managerial	2.7	2.2
Professional specialty	6.8	6.1
Technicians and related support	4.2	4.8
Sales occupations	2.6	2.1
Administrative support, including clerical	5.8	5.9
Services	5.8	5.0
Precision production, craft, and repair	4.6	4.2
Operators, fabricators and laborers	5.4	4.4
Farming, forestry, and fishing	5.6	5.9
Industry		
Agriculture	5.0	5.3
Mining	2.7	3.6
Construction	8.4	7.1
Manufacturing	3.1	2.2
Transportation and public utilities	3.0	2.6
Wholesale trade	2.3	2.1
Retail trade	3.0	2.5
Finance, insurance, and real estate	2.0	2.1
Services	7.5	6.7
Public administration	3.6	4.2

The contingent worker supplements to the CPS can be used to obtain useful insights on workers' perceptions of employment security. Despite concerns about the nature of job security in today's economy, the impression of increasing job security the most recent contingency data point to seems to be born out by most of the complementary data examined. Rising security is consistent with data on reasons for contingent work from within the supplement itself and is widespread among sex, occupation, and industry groups. A sense of rising security among women is supported by displaced worker data and one common interpretation of the tenure data. Among men, a similar sense is supported by the displaced worker data, but somewhat at odds with the tenure data. A sense rising security is also consistent with the low unemployment rate in 1997. □

Footnote

[1] Self-employed workers and independent contractors were asked a separate set of questions and were classified as contingent if they had been working under that arrangement for a year or less and expected to remain in that arrangement for a year or less.

Union polling by employers

In a recent decision, the Supreme Court overruled a National Labor Relations Board (NLRB) decision ordering Allentown Mack to bargain with the incumbent union. In *Allentown Mack Sales and Service, Inc.* v. *NLRB*, the High Court held that the NLRB's employer polling standard was rational, but that the finding of the Board was not supported by the evidence.

On December 20, 1990, three managers of Mack Trucks, Inc., and several outside investors bought out Allentown Mack from Mack Trucks, Inc. Thereafter, Allentown operated as an independent dealership. The new management dismissed the entire crew of 45 Mack employees. During the remainder of the month, Allentown rehired 32 of the original employees. Local Lodge 724 of the machinists' union previously represented Mack service and parts employees. During job interviews held after the buyout, several employees suggested to the new owners that the union had lost support among members of the bargaining unit. When Local Lodge 724 requested recognition for collective bargaining negotiations, Allentown refused, claiming a "good-faith reasonable doubt" as to the union's support. The company then polled its employees, who voted 19 to 13 against the union. Local 724 then filed an unfair labor practice charge with the NLRB.

The NLRB's operating standard for employers considering claiming a "good-faith reasonable doubt" of majority support presents three options. The employer could (1) request a formal, Board-supervised election, (2) withdraw recognition from the union and refuse to bargain, or (3) conduct an internal poll of employee support for the union. Options 2 and 3 are considered a violation of the Fair Labor Standards Act, unless the employer can show an "objective reasonable doubt" of support. The administrative law judge held that Allentown lacked such "objective reasonable doubt" about Local 724's majority status, and therefore, the poll violated Sections 8(a)(1) and 8(a)(5) of the National Labor Relations Act.[1] The NLRB agreed and ordered Allentown Mack to recognize and bargain with the union. Upon appeal, the District of Columbia Circuit Court of Appeals upheld the order.

The Supreme Court's majority opinion, crafted by Justice Antonin Scalia, reversed and remanded the Circuit Court decision in a four-part presentation. Part I of the Scalia opinion outlined the facts of the case and was supported by a unanimous court. Part II evaluated the claim by Allentown that the NLRB's standard for polling employees was irrational. Allentown asserted that the NLRB's unitary standard dictates that a firm can poll employees only when it is legally pointless to do so. Citing another case, however,[2] Justice Scalia and the majority court concluded that the polling standard imposed by the Board was "rational and consistent" with the Act. While the adoption of a unitary standard for elections, polling, and withdrawal of recognition was somewhat "puzzling" to Justice Scalia, the majority conceded that it was not wholly irrational. The Justice later posed some possible reasons the polling standard should be either higher or lower than the standard for a Board-certified election and concluded that splitting the difference was not "irrational."

In Part III, Justice Scalia discussed whether it would be possible for a reasonable jury to reach the NLRB's conclusion that Allentown did not have an "objective reasonable doubt" concerning majority support of the union. To start, Scalia addressed some "semantic confusion" over the NLRB standard by defining what the majority accepts as a "doubt." Taken from the Webster's dictionary, the word should mean "uncertainty" or "disbelief"—that is, a "failure to believe." The Justice went on to rehash the testimony and evidence presented by Allentown purporting to justify the company's reasonable doubt. The majority opinion gave "considerable" weight to the statements made by the union steward, Ron Mohr, regarding the lack of employee support for the union. The court also considered the testimony of Kermit Bloch, a mechanic working Allentown's night shift, who claimed that the union lacked majority support among the employees on his shift. After reexamination, the court concluded, in contrast to the Board, that a "reasonable doubt" was warranted on the part of Allentown's management and that a reasonable jury could not conclude otherwise.

Part IV of the Court's opinion addressed the contention made by Allentown that the NLRB had, in fact, tacitly replaced the standard of an "objective reasonable doubt" with a higher standard. Justice Scalia cited several law journals and two earlier Supreme Court decisions that noted the Board's high evidentiary standard for accepting an employer's "objective reasonable doubt." The majority Court went on to examine the language of a recent NLRB decision, *Laidlaw Waste Systems Inc.*,[3] that applied the "objective reasonable doubt" standard. The Court found, in Justice Scalia's words, that "each sentence of this [the Board's] explanation is nonsense," and, referring to two particular sentences in *Laidlaw*, "[the] two sentences together are not even compatibly nonsensical." The opinion criticized the Board for applying in practice a standard other than the one enunciated. Citing yet another case,[4] the majority found it well within the purview of the Court to overturn even an established administrative judgment when the Court deemed the judgment not to possess "reasoned decision making."

Chief Justice Rehnquist and Justice Breyer, both dissenting in part and concurring in part, wrote two additional opinions. Chief Justice Rehnquist's opinion was joined by Justices O'Connor, Kennedy, and Thomas. Rehnquist took issue with the second section of the majority opinion, which found the NLRB's standard for polling employees to be reasonable and consistent, but concurred

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with Parts III and IV of the Scalia opinion. Justice Breyer submitted an opinion joined by Justices Stevens, Souter, and Ginsburg. The Breyer opinion concurred with Parts I and II of the Scalia opinion, but dissented from Parts III and IV.

In Rehnquist's partial dissent, the Chief Justice found the NLRB's standard to be both irrational and inconsistent with the National Labor Relations Act. He noted that the Board's authorizing act does not explicitly mention employer polling. Rather, the Act grants the Board authority to prohibit any practices that "interfere with, restrain, or coerce employees in the exercise" of their right to bargain under the Act.[5] However, Rehnquist failed to comprehend how a poll administered under the NLRB's substantial rules could be considered "coercive" or violate the Act in any other way. In fact, the NLRB's "objective reasonable doubt" standard appears in some ways to limit an employee's free speech and choice (the latter of which is protected under the Act), by disallowing a poll that might otherwise remove an unpopular union. Aside from disputing the statutory authority of the NLRB, Chief Justice Rehnquist reasoned that the Board could not equate three disparate employer actions, each with different consequences for industrial peace, into a rational unitary standard. Cases such as *Gissel*,[6] *Thomas*,[7] and *Virginia Electric & Power Co.*[8] prescribe that "the Board must allow polling when it does not coerce or restrain employees. . . . [T]he Board must decide how and when . . . but the decision must be rational."

Justice Breyer's dissenting opinion took issue with the conclusions found in Parts III and IV of the majority opinion. In his partial dissent, Breyer challenged Scalia's choice of words used to define and clarify the NLRB's polling standard. According to Breyer, the word that most needs defining in the Board's standard is "objective." Breyer did not find Allentown's determination that the union lacked majority status "objective," because it was based on a series of inconclusive statements of relatively few employees given during job interviews. Breyer concluded, as the NRLB had in several cases he cited, that "an employee statement made during a job interview with an employer who has expressed an interest in a nonunionized work force will often tell you precisely nothing about that employee's true feelings." Breyer disputed the weight given by the majority to Ron Mohr and Kermit Bloch's statements, which claimed some insight into employee support for the union. Justice Breyer forewarned that the outcome of *Allentown* will weaken the system for judicial review of administrative action that the Supreme Court has carefully constructed over several decades.

Employer weight restrictions

The New York Court of Appeals affirmed an earlier ruling against 10 former flight attendants of Pan American Airlines following an agreement that Delta Airlines would purchase assets from Pan American. Roberta Brown and several other flight attendants and pursers filed suit under a New York State law claiming discrimination after Delta failed to hire them because they did not meet the airline's height and weight restrictions.

The lawsuit was launched after Pan American's bankruptcy declaration in the summer of 1991. The airline entered into an agreement with Delta whereby the latter would acquire a substantial portion of Pan American's assets. Delta also agreed to hire approximately 6,000 Pan American employees, depending upon whether they met certain specific criteria, including seniority, language proficiency, the outcome of personal interviews, and satisfaction of the least restrictive of Delta and Pan American's small-to-medium weight standards referenced in Delta's height-weight charts.

The dispute arose as a result of Delta's failure to hire 10 former Pan American employees. During its rehiring process, Delta interviewed more than 2,600 Pan American flight attendants, made job offers to approximately 2,000, and ultimately hired approximately 1,800. The complainants-appellants were former Pan American flight attendants and pursers (hereafter referred to simply as attendants) with at least 14 years of experience at the time the airline ceased its operations. They filed individual administrative complaints against Delta with the State Division of Human Rights, alleging unlawful employment discrimination. Some complaints alleged discrimination on the basis of age, sex, a perceived disability such as weight, or a combination of these categories. Some also complained of discrimination on the basis of national origin, marital status, or race.

Following investigations, an administrative law judge from the New York State Division of Human Rights determined that the attendants should be reinstated with backpay and damages for mental anguish and humiliation. In particular, the judge found both no Federal preemption and discrimination of various kinds, including violations based on Delta's preemployment physical examinations. The judge concluded that there were no bona fide occupational qualifications relating to Delta's weight requirements and preemployment physical examinations and that Delta used unlawful preemployment inquiries into the applicants' age, disability, marital status, gender, or national origin. Later, an executive deputy commissioner of the Human Rights Division sustained the gender discrimination complaints and claims of unlawful preemployment inquiries concerning national origin or sex, but dismissed the remaining claims. The commissioner allowed the award of backpay, but significantly reduced the proposed damages for mental anguish and humiliation.

All parties then filed for a review. The appellate division of the New York State supreme court annulled the determinations insofar as they were adverse to Delta Airlines. Following the verdict, the attendants appealed to the New York Court of Appeals, the State's highest court. Judge Joseph W. Bellacosa prepared the opinion of the unanimous court. At the outset, the judge ruled on the threshold issue of preemption by the

Federal Airline Deregulation Act. Delta Airlines had argued that the State discrimination claims were preempted by the 1978 Federal Act. On appeal, the attendants countered that their claims were not preempted, because Congress intended to restrict only State regulation of airline fares, routes, and services, not State regulation of employment practices. Judge Bellacosa cited a case heard in the Federal Second Circuit Court of Appeals that recently had applied the same provision.[9] The circuit court found no preemption by the Federal Airline Deregulation Act with respect to comparable age discrimination claims under the New York State Human Rights Law. The circuit court explained that "whether an airline discriminates on the basis of age (or race or sex) has little or nothing to do with competition or efficiency."[10] The New York Court of Appeals agreed.

Judge Bellacosa then addressed the claim that Delta's weight requirements constituted discrimination with regard to disability. The court found that the attendants failed to establish that they were members of a medically impaired (and therefore protected) class defined under the New York Human Rights Law. Nothing in the record supports the proposition that the appellants suffer from a legally defined or cognizable "medical impairment"[11] that restricts their "normal bodily function"[12] by merely being overweight. In support of their discrimination claim, the attendants offered the case of *State Div. of Human Rights* v. *Xerox Corp.*[13] In this case, a discrimination claim arose out of the allegation that Xerox refused to hire someone because she was obese. The examining physician determined that the complainant, who was 5 feet, 6 inches, and weighed 249 pounds, suffered from a condition of "gross obesity."[14] In *Xerox*, the court held that the commissioner could find that the complainant's obese condition itself constituted impairment and, therefore, a disability within the scope of the statute. However, Judge Bellacosa and the other justices on the court of appeals found the Xerox case to be legally quite distinct from the flight attendants' case. The attendants offered no evidence to establish that they were medically incapable of meeting Delta's weight requirements due to some cognizable medical condition. This element was crucial in Xerox, but absent in the attendants' case.

The attendants' sex discrimination claims were similarly dismissed. The attendants argued that the weight charts constituted sex discrimination because they permitted male applicants of a given height and age to weigh more than female applicants of the same height and age. However, Delta countered that it utilized separate weight charts to ensure that males and females were treated relatively equally, based on real physiological differences. The charts recognize the statistically established norm that men of a given height tend to weigh more than women of the same height. Delta submitted evidence that approximately 90 percent of its flight attendants were women, blunting the claim that Delta hiring practices discriminate on the basis of gender.

The attendants' last claim against Delta challenged the company's preemployment inquiries and medical examinations. Addressing Delta's preemployment questions, Judge Bellacosa emphasized that under the New York Human Rights Law, merely establishing that a particular inappropriate question was asked of an applicant is insufficient grounds for attributing culpability without some causal consequence, such as a decision not to hire the applicant. The court agreed with the appellate division that the record did not support the contention that inquiries by Delta's representatives contributed to the eventual decision not to hire the attendants. As for Delta's preemployment physical examinations, the court found that these routine examinations were not used in discriminatory hiring practices, but rather were necessary to comply with Federal Aviation Administration regulations. □

Footnotes

[1] 49 Stat. 452.

[2] *Fall River Dyeing & Finishing Corp.* v. *NLRB*, 482 U.S. 27, 42 (1987).

[3] *Laidlaw Waste Systems Inc.*, 307 N.L.R.B. 1211 (1992).

[4] *Motor Vehicle Mfrs. Assn. of United States, Inc.* v. *State Farm Mut. Automobile Ins. Co.*, 463 U.S. 29, 52 (1983).

[5] Sec. 8(a) (1), 29 U.S.C. Sec 158(a) (1).{1}.

[6] *NLRB* v. *Gissel Packing Co.*, 395 U.S. 575, 616–617 (1969).

[7] *Thomas* v. *Collins*, 323 U.S. 516, 537 (1945).

[8] *NLRB v. Virginia Elec. & Power Co.*, 314 U.S. 469, 477–478 (1941).

[9] *Morales* v. *Trans World Airlines*, 504 U.S. 374, 390, 112 S.Ct. 2031, 2040, 119 L.Ed.2d 157.

[10] *Ibid.*

[11] Executive Law, §296(21).

[12] *Ibid.*

[13] 65 N.Y.2d 213, 491 N.Y.S.2d 106, 480 N.E.2d 695.

[14] *Ibid.*

Capital and labor

The quantity, types, and organization of capital and labor services determine a Nation's output, according to the Federal Reserve Bank of Cleveland's *Economic Trends*. The amount invested in these accounts is affected, in turn, by the economic environment. "For instance," the report says, "growth of the capital stock decelerated significantly during the 1970s, a period of rampant inflation that magnified tax rates on capital income and dented private investment incentives."

The last 6 years, however, have witnessed a more favorable economic environment and a general boom in investment. The ensuing rise in the value of the capital stock probably also reflects the better technology in newer equipment and gains from the better deployment of existing capital.

In labor services, total hours worked have nearly doubled over the past 40 years, with only brief setbacks during recessions. Moreover, an hour of labor in 1995 cannot be directly compared with an hour of work in the mid-1950s. More education, training, and skills have made labor services more efficient. Adjusting for these, according to *Economic Trends*, "yields a steeper time profile of hours worked than does the series on observed total hours." Even allowing for such an adjustment, the ratio of capital to labor has, with the exception of the 1970s, increased consistently.

Democracy pays

In *Democracies Pay Higher Wages*, a National Bureau of Economic Research Working Paper, Dani Rodrik finds "there is a robust and statistically significant association between the extent of democratic rights and wages received by workers." Rodrick based this conclusion on models that controlled for labor productivity, per capita income levels, consumer prices, and other variables. The association of wages with democracy—a statistic based on indicators of civil liberties and political rights—remained positive in all these models.

Wealth and savings

The national savings rate is critical to the capital accumulation that drives economic growth, labor productivity, and living standards. According to Peter Yoo, writing in the Federal Reserve Bank of St. Louis' *National Economic Trends*, economists thus worry because personal savings as a percent of disposable income have dropped steadily since the early 1980s. In 1997, the savings rate by this measure stood at less than 4 percent.

Yoo goes on to investigate the effect of adding changes in the value of households' existing assets—in particular the rise in stock prices—to our understanding of national savings. Increases in the value of existing wealth might imply that "markets believe existing assets will be more productive in the future, so the increased wealth may substitute for capital accumulation."

This broader concept of savings, however, has little impact on the way recent trends in savings would be viewed. The broader measure of savings, total change in wealth as a percent of disposable income, is both higher and more volatile than the personal savings rate. This is not surprising, given the fluctuations of stock and other asset prices. What Yoo finds more important is that the alternative measure also turns out to show a declining savings rate, despite rising stock prices.

Industrial diversity

The *fedgazette* newspaper published by the Federal Reserve Bank of Minneapolis, reprinted a State Industrial Diversity Index developed by Regional Financial Associates for 1995–96. On a scale where 1.00 indicates that a State has an industrial structure identical to that of the Nation, the average State scored 0.61. The States with industrial structures most like the Nation's were Pennsylvania, Illinois, and Missouri with index scores of 0.83. The District of Columbia and Nevada least resembled the Nation, with index scores of 0.16 and 0.17, respectively.

Different surveys, different measures

One of the frustrations of economics is the significant differences in outcome that is often the result of seemingly minor change in method. Quite often, painstaking work is needed to find the sources of these differences. A good example of this appeared in the *Social Security Bulletin* under the title "Why SIPP [Survey of Income and Program Participation] and CPS [Current Population Survey] Produce Different Poverty Measure Among the Elderly." According to the *Bulletin*, "In terms of *poverty rates*, the SIPP consistently produces lower estimates for all subgroups and all 4 years considered (1987, 1988, 1990, and 1991). . . .SIPP not only finds fewer poor people, it also finds that those counted as poor are on average somewhat better off than their (more numerous) CPS counterparts."

The two surveys found broadly similar patterns of income for the elderly: Social Security benefits are about 40 percent of income; property income, 25 percent; other pensions, 20 percent; and wages, 10 percent. But SIPP counted more recipients for all sources of income, albeit often in lower amounts. The most important exception is Social Security benefits and they are the most important reason SIPP recorded poverty rates for older Americans that were lower by 2-1/2 to 4 percentage points than those in the CPS. "To summarize," concluded the *Bulletin*, "differences in the reporting of Social Security benefits seem to be able to account for at least half of the poverty rate differential among the elderly in SIPP and CPS." □

Moving ahead

Women Entrepreneurs Moving Beyond the Glass Ceiling. By Dorothy P. Moore and E. Holly Buttner. Thousands Oaks, CA, Sage Publications, Inc., 1997, 262 pp. $46, cloth; $19.95, paper.

In *Women Entrepreneurs Moving Beyond the Glass Ceiling*, Dorothy P. Moore and E.Holly Buttner present findings of a study drawn from focus interviews with 129 women entrepreneurs, and from responses to questionnaires that the women provided the authors.

There has been a dearth of information about successful women entrepreneurs, given that most small business research had centered on entrepreneurs who were men. How are women who start businesses different from men who start businesses? This research may be useful on two levels. It meets an academic need for insight into the characteristics of women who start businesses. It may also be helpful for women wishing to start their own businesses because the narrative provides detailed personal insights into problems and solutions that struggling start-up firms face.

The profile of the survey entrepreneurs indicates that most were operating an incorporated service business with annual sales in the $250,000–499,000 range. Most were white, college-educated, and married with at least one child. The profile suggested a rather homogeneous group. The findings, then, may not be expected to reflect the characteristics of a wider group of women entrepreneurs.

The authors' research strategy is to present a rich variety of findings from previous studies which were then used as test hypotheses for this group of respondents. The technical tools used to analyze the data seem statistically sophisticated and thorough. Factor analysis appeared to be successful at getting to the heart of the reasons for women starting their own businesses. The content analysis of the focus groups appeared to ferret out the respondents' real opinions on the research topics. The colorful incidents surfacing in the focus group conversations provided the feast of information which added to the readability of the book.

In introducing the subject, the authors points out that "Traditional" women entrepreneurs before the 1980s tended to be proprietors of small, slow-growing service businesses with low earnings and equity.

"Second Generation" women entrepreneurs started to appear in the 1980s; these were women who met Drucker's definition of one who "drastically upgrades the yield from resources and creates a new market and a new customer." Many were women who had left corporations to start their own firms and were in nontraditional female businesses. Researchers often linked their leaving a previous organization to career frustration; the corporate environment was stifling. However, women who recently became business owners who have worked in the corporate environment seemed to have benefited from the variety of their experiences there.

The study suggests that women who started their own businesses from a desire for self-determination and for the challenge, with the concomitant respect, recognition, and self-esteem that both self-determination and challenge provide. And, moving from a large organization to one's own business reflects a strong desire to be one's own boss. This research failed to support the assumption that women with families started businesses to help balance work and family responsibilities.

Findings outline the differences between women who always intended to start their own businesses and those who had originally hoped to move up in a corporate environment. Women entrepreneurs used their previous organizations as "incubators" to acquire skills which were useful in start-up firms. The survey data suggested that women hoping to move up in the corporate environment placed a higher value on developing managerial skills than did those who had always intended to start their own businesses at some point in their lives. This latter group placed a higher value on marketing and technical skills, and each group tended to underestimate the value of the skills they did not pursue.

Findings from the research suggest that rather than a top-down management style, women entrepreneurs' management style could be thought of as a wheel with the owner at the hub connected to each subordinate by a spoke and the employees linked around the rim. Female leaders often used a style which encouraged participation, shared power and information, enhanced others' self-worth, and excited others about their work. Women tend to pay less attention to formal power and rely more on personal power.

It's interesting that the model for both women's management style and communication style is described as a wheel with the woman business owner at the center reaching out to others individually along the spokes of the wheel. It might be interesting to speculate whether or not this style, both in communication and in management, may be closely related to the size of the enterprise. It is difficult to see how a relatively large organization could be run in this fashion. It would seem that a large organization would have to depend on more hierarchal management and communication styles while smaller organizations could function in this way.

The authors suggest that the key to successfully starting a business is simply moving from "know-how" to "know-who." Separate theories of career development may be needed for women and men because women are often excluded from formal network structure and even informal networks, the grapevine. It appeared that because of these constraints, women's networks differed

from men's networks. Researchers agree that networks are most vibrant when people value them without expecting benefits.

Success, measured in terms of business size, sales, and growth, is not the yardstick to measure success for women owners in this survey. There are multiple dimensions of success for women business owners; internally, personal growth, professional development, and improving one's skills seemed more important than external measures, such as profits and business growth.

A statistical factor analysis of nine measures yields three factors: self-actualization (composed of self-fulfillment and achievement of goals); business performance (composed of profits and business growth); and a web effect (including employee satisfaction, helping others, balancing family and work, and social contributions) that were of underlying importance in measuring success for women.

Women saw starting a business not as a career, but as a life strategy. This book may shed light into the corners exposing the reasons for the quickening pace of women's business ownership.

—Arline Easley
Women's Bureau
U.S. Department of Labor

Can cutting hours add jobs?

The Microeconomics of the Shorter Working Week. By Marcus Rubin and Ray Richardson. Brookfield, VT, Ashgate Publishing Co., 1997, 155 pp. $55.95.

Cutting hours of work to create jobs is prominently on the agenda in Europe, and more quietly discussed in the United States. This monograph is very timely for economists working in this field. The book's essential concern is the contentious issue of whether cutting hours of work will lead to additional employment. The impact that cutting hours has on productivity is the focus of the research. The answer is important, obviously, for both sides in labor negotiations, and, more importantly, is critical to national policy debates on the question of shortening the work week. The authors conclude that reduced hours at individual workplaces do increase employment, while stressing that such findings cannot be generalized to the overall economy.

The book is rich with reference to the United Kingdom's broad literature on working hours, beyond the productivity question. Major virtues are the extensive bibliography, including the U.S. literature, and a discussion of surveys on worker preferences for hours of work.

The book opens with a description of competing views of what fuels the drive for shorter hours—institutions such as labor unions or individual choice for more leisure. What the authors call the economic approach sees productivity growth raising living standards, resulting in individuals choosing shorter working hours. The institutionalists stress two explanations, fear of unemployment or, alternatively, joint labor/management anticipation of productivity gains as a result of cutting hours. Productivity gains are stressed by both, but are they a cause or a consequence of cutting hours?

Addressing the theory that individual choice drives the shortening of hours, the authors report that a number of surveys asking what hours people want show a dominant preference for the same hours already worked, rather than reductions. The authors here point out that the neoclassical theory of labor supply uses the same approach as neoclassical consumption theory. Neither deals with the phenomena of habit persistence, revealing the limited value of surveys in determining individual choice.

Chapter two's review of research on the impact that cutting hours has on productivity focuses on the United Kingdom but includes U.S. research. This chapter is stimulating because the need for further work is apparent. A reader not already acquainted with this research, however, may be lost in the strong terse criticism Rubin and Richardson offer. The reader is left wanting new studies which might control for the business cycle and other variables, for example, in estimating the impact of cutting hours. The work by Michael White and others from the Policy Studies Institute in London comes in for more detailed criticism. White's conclusion that shortening hours leads to significant offsetting gains in productivity is made to sound implausible.

Rubin and Richardson's own two studies, done in 1991 and 1992–94, are reported with details on both technique and results. Their approach is "micro" in that they interviewed or surveyed at the plant level, hence the "microeconomics" of the title. The 1991 research found (among other things) that "Nearly all managers reported that shorter hours agreements had increased productivity." They are to be commended for reporting that, based on their later work, they now reject that result. Their view that the later study, with repeat interviews with multiple sources is more reliable, is convincing.

The detailed report of interviews reveals the unreliability of answers by both management and labor in response to surveys and interviews. Managers saying that cutting hours was self-financing because of productivity gains may do so to satisfy concerns of higher management, rather than basing the claim on data or studies. The detailed discussion of the interview results is instructive. The authors report on corporate data shortcomings, on the disinterest of some managements in knowing whether cutting hours has any impact on productivity, and offer suggestions on how to strengthen survey and interview research.

They conclude from their latest re-

search that "Very little of the undoubted growth in labor productivity can be attributed to the shorter working week." In light of the frank report of problems, however, the confidence with which Rubin and Richardson state their strong conclusions seems misplaced.

Both advocates and opponents of shorter working hours want to know if job gains will be minimized because productivity jumps as hours are cut, or if the cost will be high because productivity does not respond. The research reported and referenced in this book opens the search for answers.

—Eugene P. Coyle
Economist
Eco-Economics

Balancing Federal budgets

Setting National Priorities: Budget Choices for the Next Century. Edited by Robert D. Reischauer. Washington, The Brookings Institution Press, 1997, 310 pp. $42.95, cloth; $18.95, paper.

Setting National Priorities is the 10th in a series of books by the same title published over various years from 1978 to the present by The Brookings Institution which focus on spending and taxation issues of the Federal budget. Edited by Robert Reischauer, senior fellow at The Brookings Institution, this edition includes eight essays by highly respected economists. The subjects explored are current policies and proposals aimed at reducing the long-term projected budget deficits. While the subtitle, "Budget Choices for the Next Century," suggests a broad consideration of the role and scope of the Federal Government in our economy, most of the articles relate more narrowly to the immediate concern of bringing the Federal budget into balance. Very little consideration is given to broader philosophical questions about equity, justice, or stability of the economic system in relation to the Federal budget. Although these issues are mentioned in the essays, the main emphasis is on obtaining efficiency as defined by cutbacks or restructuring to eliminate long-run estimates of large deficits. Reischauer, in the opening article, discusses the political climate and the slow economic growth rate in relation to the expansion in entitlements since the mid- 1970s that has made the deficit the center of attention of this collection of essays.

In the second essay, Shultze discusses both supply side and demand side options of spurring economic growth in an economy at full employment. He concludes that while some of the supply side options may be desirable as long-run policies, there is very little that can or should be done by either the Federal Reserve to manage demand through money supply or by the Federal Government in terms of deregulation, tax cuts or tax reform, or increased government spending on education or infrastructure to alleviate the immediate problem of deficits. Burtless, Weaver, and Weiner give an overview of the Personal Responsibility and Work Opportunities Act signed by President Clinton in 1996 which "does away with welfare as we know it." They point out that the two major short-run effects of the act are the loss of eligibility by some individuals and the increased role of the State. The fourth article, again by Reischauer, discusses the history of and difficulty in further cutting nondefense discretionary spending. Steinbruner and Kaufmann consider the changing role of international security and suggest that we need to look more intensely at cooperative and preventive alternatives to modify and reduce expenditures on conventional attack strategies. Cutler does a laudable job of explaining the medicare history and current problems to the uninitiated. While emphasizing the immense popularity of this program, he discusses possible methods of scaling back expenditures. Some of the methods may bring about a one-time ratcheting down of costs, but most options result in a decrease in use of health care by the elderly. Aaron and Gale discuss the popular notion of eliminating the Federal income tax and replacing it with either a flat, consumption, sales, or value added tax. They determine that such proposals are more mirage than miracle. In the final essay, Aaron and Bosworth give a clear and comprehensive accounting of baby-boomers' retirement funding sources including Social Security, medicare, and medicaid, and explore alternative options for funding. To keep future generations from bearing an unmanageable burden when the retirement bulge begins, they suggest switching to a partially funded program, invested in a mixed private-public portfolio to replace the current unfunded Social Security program.

All of the essays are clearly written in highly accessible language. This collection is a valuable resource for citizens eager to bypass media soundbites, journalists who want to understand these issues, and students of public policy, public health, political science or economics.

—Susan Parks
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Publications received

Economic and social statistics

Card, David and Alan B. Krueger, *Myth and Measurement: The New Economics of the Minimum Wage.* Princeton, NJ, Princeton University Press, 1995, 422 pp.

Israel, Central Bureau of Statistics, *Monthly Bulletin of Statistics.* July and August 1997, 151 and 150 pp., respectively.

Jerusalem, Israel, Central Bureau of Statistics.

Shone, Ronald, *Economic Dynamics: Phase Diagrams and Their Economic Application.* New York, Cambridge University Press, 1997, 553 pp.

Economic growth and development

Chernyshev, Igor and Guy Standing, *Statistics for Emerging Labour Markets in Transition Economics: A Technical Guide on Sources, Methods, Classifications and Policies.* New York, St. Martin's Press, 1997, 171 pp., bibliography. $69.95.

Freeman, Chris and Luc Soete, *The Economics of Industrial Innovation.* 3rd ed., Cambridge, MA, The MIT Press, 1997, 470 pp. $20, paper.

Myers, Ramon H., ed., *The Wealth of Nations in the Twentieth Century: The Policies and Institutional Determinants* of *Economic Development.* Stanford, CA, Hoover Institution Press, 1996, 314 pp. $24.95, paper.

Vickers, Douglas, *Economics and Ethics: An Introduction to Theory, Institutions, and Policy.* Westport, CT, Praeger Publishers, 1997, 172 pp. $59.95, cloth; $19.95, paper.

Industrial relations

Blau, Francine D. and Ronald C. Ehrenberg, eds., *Gender and Family Issues in the Workplace.* New York, Russell Sage Foundation, 1997, 301 pp. $42.50.

Bureau of National Affairs, *The Railway Labor Act: 1997 Cumulative Supplement (covering 1995–1996).* Washington, Bureau of National Affairs, 1997, 167 pp. $85, plus shipping and handling. Available from BNA Books, Edison, NJ.

Center to Protect Workers' Rights, *The Construction Chart Book: The U.S. Construction Industry and Its Workers.* Washington, Center to Protect Workers' Rights, 1997, 52 pp. $12, postpaid, paper.

Dodgson, Mark and Roy Rothwell, eds., The *Handbook of Industrial Innovation.* Northampton, MA, Edward Elgar Publishing, Inc., 1994, 453 pp.

Jennings, Kenneth M. *Swings and Misses: Moribund Labor Relations In Professional Baseball.* Westport, CT, Praeger Publishers, 1997, 259 pp., bibliography. $55.

Koike, Kazuo, *Human Resource Development.* Tokyo, The Japan Institute of Labour, 1997, 143 pp.

Lilly, Teri Ann, Marcie Pitt-Catsouphes, and Bradley K. Googins, comp., *Work-Family Research: An Annotated Bibliography.* Westport, CT., Greenwood Press, 1997, 315 pp., $69.50.

McCartin, Joseph A., *Labor's Great War: The Struggle for Industrial Democracy and the Origins of Modern American Labor Relations, 1912–1921.* Chapel Hill, University of North Carolina Press, 1997, 303 pp. $49.95, cloth; $18.95, paper.

Perlow, Leslie A., *Finding Time: How Corporations, Individuals, and Families can Benefit from New Work Practices.* Ithaca, NY, Cornell University Press, 1997, 156 pp. $37.50, cloth; $13.95, paper.

Seymour, Richard T. and Barbara Berish Brown. *Equal Employment Law Update.* Spring 1997 ed. Washington, Bureau of National Affairs, Inc., 1997, 1109 pp. $95,plus shipping and handling. Available from BNA Books, Edison, NJ.

Wellman, David, *The Union Makes Us Strong: Radical Unionism on the San Francisco Waterfront.* New York, Cambridge University Press, 1995, 364 pp. $59.95.

Zieger, Robert H., ed., *Southern Labor in Transition, 1940–1995.* Knoxville, University of Tennessee Press, 1997, 346 pp.

International economics

Elliott, Kimberly Ann, ed., *Corruption and the Global Economy.* Washington, Institute for International Economics, 1997, 244 pp. $20, paper.

Hinshaw, Randall, ed., *The World Economy In Transition: What Leading Economists Think.* Northampton, MA, Edward Elgar Publishers, Inc., 1996, 186 pp.

Labor and economic history

Glickman, Lawrence B., *A Living Wage: American Workers and the Making of Consumer Society.* Ithaca, NY, Cornell University Press, 1997, 220 pp. $35.

Jacoby, Sanford M., *Modern Manors: Welfare Capitalism Since the New Deal.* Princeton, NJ, Princeton University Press, 1997, 345 pp. $35.

Karier, Thomas, *Great Experiments in American Economic Policy From Kennedy to Reagan.* Westport, CT, Praeger Publishers, 1997, 233 pp. $59.95.

Labor force

Farmer, Helen S. and others, *Diversity & Women's Career Development: From Adolescence to Adulthood.* Thousand Oaks, CA, Sage Publications, 1997, 344 pp. $54, cloth; $24.95, paper.

Snower, Dennis J. and Guillermo de la Dehesa, eds., *Unemployment Policy: Government Options for the Labour Market.* New York, Cambridge University Press, 1997, 591 pp. $80.

U.S. Bureau of Labor Statistics, *NLS Handbook, 1997.* Washington, 1997, 144 pp.

_____*Occupational Employment Statistics, 1995.* Washington, Bulletin 2484, 114 pp.

U.S. Merit Systems Protection Board, *Achieving a Representative Federal Workforce: Addressing the Barriers to Hispanic Participation.* (A report to the President and the Congress of the United States.) Washington, U.S. Merit Systems Protection Board, Office of Policy and Evaluation, 1997, 21 pp.

Social institutions and social change

Birenbaum, Arnold, *Managed Care: Made in America.* Westport, CT, Praeger Pub-

lishers, 1997. 193 pp. bibliography. $39.95.

Moore, Dorothy P. and E. Holly Buttner, *Women Entrepreneurs: Moving Beyond the Glass Ceiling.* Thousand Oaks, CA Sage Publications, 1997, 262 pp. $46, cloth; $19.95, paper.

O'Leary, Greg, ed., *Adjusting to Capitalism: Chinese Workers and the State.* Armonk, NY, M.E. Sharpe, Inc., 1998, 181 pp. Bibliography. $62.95.

Pecora, Norma Odom, *The Business of Children's Entertainment.* New York, Guilford Press, 1998, 190 pp. $30.

Rives, Janet M. and Mahmood Yousefi, eds., *Economic Dimensions of Gender Inequality: A Global Perspective.* Westport, CT, Praeger Publishers, 1997, 242 pp. $59.95.

Wise, David A., ed., *Facing the Age Wave.* Stanford, CA, Hoover Institution Press, 1997, 120 pp. $16.95, paper.

Urban affairs

Cervero, Robert, *Paratransit In America: Redefining Mass Transportation.* Westport, CT, Praeger Publishers, 1997, 281 pp., bibliography. $59.95.

Obeng, K., A.H.M. Golam Azam, and R. Sakano, *Modeling Econonic Inefficiency Caused by Public Transit Subsidies.* Westport, CT, Preger Publishers, 1997, 195 pp., bibliography. $65.

Wages and compensation

Brown, Clair and others, *Work and Pay in the United States and Japan.* New York, Oxford University Press, 1997, 234 pp.

U.S. Bureau of Labor Statistics, *National Compensation Survey Pilot Test: Huntsville, AL, December 1996.* Bulletin 3090–1. For sale by the Superintendent of Documents, Mail Stop: SSOP, Washington, DC 20402–9328.

_____*National Compensation Survey Pilot Test: New York-Northern NJ—Long Island, February 1997.* Bulletin 3090–10. 45 pp. For sale by the Superintendent of Documents, Mail Stop: SSOP, Washington, DC 20402–9328.

_____*National Compensation Survey Pilot Test: Los Angeles—Riverside—Orange County, CA, January 1997,* Bulletin 3090–12. 43 pp. For sale by the Superintendent of Documents, Mail Stop: SSOP, Washington, DC 20402–9328.

_____*Occupational Compensation Survey, National Summary, 1995.* Washington, 1997, Bulletin 2487, Stock No. 029–001–03268–4. $20. For sale by the Superintendent of Documents, Mail Stop: SSOP, Washington, DC 20402–9328.

Welfare programs and social insurance

Blaustein, Saul J., *Unemployment Insurance in the United States: The First Half Century.* Kalamazoo, MI, W.E. Upjohn Institute for Employment Research, 1993, 367 pp. $20, paper.

Epstein, Richard, *Maximizing Your Health Insurance Benefits: A Consumer's Guide to New and Traditional Plans.* Westport, CT, Praeger Publishers, 1997, 204 pp. $35.

Gordon, Michael S., Olivia S. Mitchell, and Marc M. Twinney, eds., *Positioning Pensions for the Twenty-First Century.* Philadelphia, University of Pennsylvania Press, 1997, 247 pp. $42.50.

Noble, Charles, *Welfare As We Knew It: A Political History of the American Welfare State.* New York, Oxford University Press, 1997, 210 pp. $45.

O'Leary, Christopher J. and Stephen A. Wandner, eds., *Unemployment Insurance In the United States: Analysis of Policy Issues.* Kalamazoo, MI, W.E. Upjohn Institute for Employment Research, 1997, 760 pp.

Schieber, Sylvester and John Shoven, eds., *Public Policy Toward Pensions.* Cambridge, MA, The MIT Press, 1997, 338 pp. $40.

Worker training and development

Buzzi, Frank J., *Twentieth Actuarial Valuation* (of the Assets and Liabilities Under the Railroad Retirements Acts as of December 31, 1995,) with *Technical Supplement.* Chicago, U.S. Railroad Retirement Board, Bureau of the Actuary, 1997, 99 pp.

Heckman, James and Jeffrey A. Smith. *The Sensitivity of Experimental Impact Estimates: Evidence from the National JTPA Study.* Cambridge, MA, National Bureau of Economic Research, Inc., 1997, 48 pp., (Working Paper 6105.) $5 per copy, plus $10 for postage and handling outside the United States. □

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This section of the *Review* presents the principal statistical series collected and calculated by the Bureau of Labor Statistics: series on labor force; employment; unemployment; labor compensation; consumer, producer, and international prices; productivity; international comparisons; and injury and illness statistics. In the notes that follow, the data in each group of tables are briefly described; key definitions are given; notes on the data are set forth; and sources of additional information are cited.

General notes

The following notes apply to several tables in this section:

Seasonal adjustment. Certain monthly and quarterly data are adjusted to eliminate the effect on the data of such factors as climatic conditions, industry production schedules, opening and closing of schools, holiday buying periods, and vacation practices, which might prevent short-term evaluation of the statistical series. Tables containing data that have been adjusted are identified as "seasonally adjusted." (All other data are not seasonally adjusted.) Seasonal effects are estimated on the basis of past experience. When new seasonal factors are computed each year, revisions may affect seasonally adjusted data for several preceding years.

Seasonally adjusted data appear in tables 1–14, 16–17, 39, and 43. Seasonally adjusted labor force data in tables 1 and 4–9 were revised in the February 1998 issue of the *Review*. Seasonally adjusted establishment survey data shown in tables 1, 12–14 and 16–17 were revised in the July 1997 *Review* and reflect the experience through March 1997. A brief explanation of the seasonal adjustment methodology appears in "Notes on the data."

Revisions in the productivity data in table 45 are usually introduced in the September issue. Seasonally adjusted indexes and percent changes from month-to-month and quarter-to-quarter are published for numerous Consumer and Producer Price Index series. However, seasonally adjusted indexes are not published for the U.S. average All-Items CPI. Only seasonally adjusted percent changes are available for this series.

Adjustments for price changes. Some data—such as the "real" earnings shown in table 14—are adjusted to eliminate the effect of changes in price. These adjustments are made by dividing current-dollar values by the Consumer Price Index or the appropriate component of the index, then multiplying by 100. For example, given a current hourly wage rate of $3 and a current price index number of 150, where 1982 = 100, the hourly rate expressed in 1982 dollars is $2 ($3/150 x 100 = $2). The $2 (or any other resulting values) are described as "real," "constant," or "1982" dollars.

Sources of information

Data that supplement the tables in this section are published by the Bureau in a variety of sources. Definitions of each series and notes on the data are contained in later sections of these Notes describing each set of data. For detailed descriptions of each data series, see *BLS Handbook of Methods*, Bulletin 2490. Users also may wish to consult *Major Programs of the Bureau of Labor Statistics*, Report 871. News releases provide the latest statistical information published by the Bureau; the major recurring releases are published according to the schedule appearing on the back cover of this issue.

More information about labor force, employment, and unemployment data and the household and establishment surveys underlying the data are available in the Bureau's monthly publication, *Employment and Earnings*. Historical unadjusted and seasonally adjusted data from the household survey are available on the Internet:

http://stats.bls.gov/cgi-bin/dsrv?lf

Historically comparable unadjusted and seasonally adjusted data from the establishment survey also are available on the Internet:

http://stats.bls.gov/cgi-bin/dsrv?ee

Additional information on labor force data for sub-States are provided in the BLS annual report, *Geographic Profile of Employment and Unemployment.*

For a comprehensive discussion of the Employment Cost Index, see *Employment Cost Indexes and Levels, 1975–95*, BLS Bulletin 2466. The most recent data from the Employee Benefits Survey appear in the following Bureau of Labor Statistics bulletins: *Employee Benefits in Medium and Large Firms; Employee Benefits in Small Private Establishments;* and *Employee Benefits in State and Local Governments*.

More detailed data on consumer and producer prices are published in the monthly periodicals, *The CPI Detailed Report* and *Producer Price Indexes*. For an overview of the 1998 revision of the CPI, see the December 1996 issue of the *Monthly Labor Review*. Additional data on international prices appear in monthly news releases.

For a listing of available industry productivity indexes and their components, see *Productivity Measures for Selected Industries*, BLS Bulletin 2491.

For additional information on international comparisons data, see *International Comparisons of Unemployment*, BLS Bulletin 1979.

Detailed data on the occupational injury and illness series are published in *Occupational Injuries and Illnesses in the United States, by Industry*, a BLS annual bulletin.

Finally, the *Monthly Labor Review* carries analytical articles on annual and longer term developments in labor force, employment, and unemployment; employee compensation and collective bargaining; prices; productivity; international comparisons; and injury and illness data.

Symbols

n.e.c. = not elsewhere classified.
n.e.s. = not elsewhere specified.
p = preliminary. To increase the timeliness of some series, preliminary figures are issued based on representative but incomplete returns.
r = revised. Generally, this revision reflects the availability of later data, but also may reflect other adjustments.

Comparative Indicators

(Tables 1–3)

Comparative indicators tables provide an overview and comparison of major BLS statistical series. Consequently, although many of the included series are available monthly, all measures in these comparative tables are presented quarterly and annually.

Labor market indicators include employment measures from two major surveys and information on rates of change in compensation provided by the Employment Cost Index (ECI) program. The labor force participation rate, the employment-to-population ratio, and unemployment rates for major demographic groups based on the Current Population ("household") Survey are presented, while measures of employment and average weekly hours by major industry sector are given using nonfarm payroll data. The Employment Cost Index (compensation), by major sector and by bargaining status, is chosen from a variety of BLS compensation and wage measures because it provides a comprehensive measure of employer costs for hiring labor, not just outlays for wages, and it is not affected by employment shifts among occupations and industries.

Data on **changes in compensation, prices, and productivity** are presented in table 2.

Measures of rates of change of compensation and wages from the Employment Cost Index program are provided for all civilian nonfarm workers (excluding Federal and household workers) and for all private nonfarm workers. Measures of changes in consumer prices for all urban consumers; producer prices by stage of processing; overall prices by stage of processing; and overall export and import price indexes are given. Measures of productivity (output per hour of all persons) are provided for major sectors.

Alternative measures of wage and compensation rates of change, which reflect the overall trend in labor costs, are summarized in table 3. Differences in concepts and scope, related to the specific purposes of the series, contribute to the variation in changes among the individual measures.

Notes on the data

Definitions of each series and notes on the data are contained in later sections of these notes describing each set of data.

Employment and Unemployment Data

(Tables 1; 4–20)

Household survey data

Description of the series

EMPLOYMENT DATA in this section are obtained from the Current Population Survey, a program of personal interviews conducted monthly by the Bureau of the Census for the Bureau of Labor Statistics. The sample consists of about 50,000 households selected to represent the U.S. population 16 years of age and older. Households are interviewed on a rotating basis, so that three-fourths of the sample is the same for any 2 consecutive months.

Definitions

Employed persons include (1) all those who worked for pay any time during the week which includes the 12th day of the month or who worked unpaid for 15 hours or more in a family-operated enterprise and (2) those who were temporarily absent from their regular jobs because of illness, vacation, industrial dispute, or similar reasons. A person working at more than one job is counted only in the job at which he or she worked the greatest number of hours.

Unemployed persons are those who did not work during the survey week, but were available for work except for temporary illness and had looked for jobs within the preceding 4 weeks. Persons who did not look for work because they were on layoff are also counted among the unemployed. **The unemployment rate** represents the number unemployed as a percent of the civilian labor force.

The **civilian labor force** consists of all employed or unemployed persons in the civilian noninstitutional population. Persons **not in the labor force** are those not classified as employed or unemployed. This group includes discouraged workers, defined as persons who want and are available for a job and who have looked for work sometime in the the past 12 months (or since the end of their last job if they held one within the past 12 months), but are not currently looking, because they believe there are no jobs available or there are none for which they would qualify. The **civilian noninstitutional population** comprises all persons 16 years of age and older who are not inmates of penal or mental institutions, sanitariums, or homes for the aged, infirm, or needy. The **civilian labor force participation** rate is the proportion of the civilian noninstitutional population that is in the labor force. The **employment-population ratio** is employment as a percent of the civilian noninstitutional population.

Notes on the data

From time to time, and especially after a decennial census, adjustments are made in the Current Population Survey figures to correct for estimating errors during the intercensal years. These adjustments affect the comparability of historical data. A description of these adjustments and their effect on the various data series appears in the Explanatory Notes of *Employment and Earnings*.

Labor force data in tables 1 and 4–9 are seasonally adjusted. Since January 1980, national labor force data have been seasonally adjusted with a procedure called X-11 ARIMA which was developed at Statistics Canada as an extension of the standard X-11 method previously used by BLS. A detailed description of the procedure appears in the X-11 *ARIMA Seasonal Adjustment Method*, by Estela Bee Dagum (Statistics Canada, Catalogue No. 12-564E, January 1983).

At the end of each calendar year, historical seasonally adjusted data usually are revised, and projected seasonal adjustment factors are calculated for use during the January–June period. Because of the redesign of the survey, seasonally adjusted data back to 1994 usually are revised. In July, new seasonal adjustment factors, which incorporate the experience through June, are produced for the July–December period, but no revisions are made in the historical data.

Revisions to household data

Data beginning in 1998 are not strictly comparable with data for 1997 and earlier years because of the introduction of new composite estimation procedures and updated population controls. Additional information on these revisions appears in the February 1998 issue of *Employment and Earnings*.

FOR ADDITIONAL INFORMATION on national household survey data, contact the Division of Labor Force Statistics: (202) 606–6378.

Establishment survey data

Description of the series

EMPLOYMENT, HOURS, AND EARNINGS DATA in this section are compiled from payroll records reported monthly on a voluntary basis to the Bureau of Labor Statistics and its cooperating State agencies by about 390,000 establishments representing all industries except agriculture. Industries are classified in accordance with the 1987 *Standard Industrial Classification (SIC) Manual*. In most industries, the sampling probabilities are based on the size of the establishment; most large establishments are therefore in the sample. (An establishment is not necessarily a firm; it may be a branch plant, for example, or warehouse.) Self-employed persons and others not on a regular civilian payroll are outside the scope of the survey because they are excluded from establishment records. This largely accounts for the difference in employment figures between the household and establishment surveys.

Definitions

An **establishment** is an economic unit which produces goods or services (such as a factory or store) at a single location and is engaged in one type of economic activity.

Employed persons are all persons who received pay (including holiday and sick pay) for any part of the payroll period including the 12th day of the month. Persons holding more than one job (about 5 percent of all persons in the labor force) are counted in each establishment which reports them.

Production workers in manufacturing include working supervisors and nonsupervisory workers closely associated with production operations. Those workers mentioned in tables 11–16 include production workers in manufacturing and mining; construction work-

ers in construction; and nonsupervisory workers in the following industries: transportation and public utilities; wholesale and retail trade; finance, insurance, and real estate; and services. These groups account for about four-fifths of the total employment on private nonagricultural payrolls.

Earnings are the payments production or nonsupervisory workers receive during the survey period, including premium pay for overtime or late-shift work but excluding irregular bonuses and other special payments. **Real earnings** are earnings adjusted to reflect the effects of changes in consumer prices. The deflator for this series is derived from the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W).

Hours represent the average weekly hours of production or nonsupervisory workers for which pay was received, and are different from standard or scheduled hours. **Overtime hours** represent the portion of average weekly hours which was in excess of regular hours and for which overtime premiums were paid.

The **Diffusion Index** represents the percent of industries in which employment was rising over the indicated period, plus one-half of the industries with unchanged employment; 50 percent indicates an equal balance between industries with increasing and decreasing employment. In line with Bureau practice, data for the 1-, 3-, and 6-month spans are seasonally adjusted, while those for the 12-month span are unadjusted. Data are centered within the span. Table 17 provides an index on private nonfarm employment based on 356 industries, and a manufacturing index based on 139 industries. These indexes are useful for measuring the dispersion of economic gains or losses and are also economic indicators.

Notes on the data

Establishment survey data are annually adjusted to comprehensive counts of employment (called "benchmarks"). The latest adjustment, which incorporated March 1996 benchmarks, was made with the release of May 1997 data, published in the July 1997 issue of the *Review.* Coincident with the benchmark adjustment, seasonally adjusted data were revised back to 1988 to reflect updated seasonal factors and seasonal adjustment procedures. Unadjusted data from April 1996 forward and seasonally adjusted data from January 1993 forward are subject to revision in future benchmarks.

Revisions in State data (table 11) occurred with the publication of January 1998 data.

Beginning in June 1996, the BLS uses the X-12 ARIMA methodology to seasonally adjust establishment survey data. This procedure, developed by the Bureau of the Census, controls for the effect of varying survey intervals (also known as the 4- versus 5-week effect), thereby providing improved measurement of over-the-month changes and underlying economic trends. Revisions of data, usually for the most recent 5-year period, are made once a year coincident with the benchmark revisions.

In the establishment survey, estimates for the most recent 2 months are based on incomplete returns and are published as preliminary in the tables (12–17 in the *Review).* When all returns have been received, the estimates are revised and published as "final" (prior to any benchmark revisions) in the third month of their appearance. Thus, December data are published as preliminary in January and February and as final in March. For the same reasons, quarterly establishment data (table 1) are preliminary for the first 2 months of publication and final in the third month. Thus, fourth-quarter data are published as preliminary in January and February and as final in March.

A comprehensive discussion of the differences between household and establishment data on employment appears in Gloria P. Green, "Comparing employment estimates from household and payroll surveys," *Monthly Labor Review,* December 1969, pp. 9–20.

FOR ADDITIONAL INFORMATION on establishment survey data, contact the Division of Monthly Industry Employment Statistics: (202) 606–6555.

Unemployment data by State

Description of the series

Data presented in this section are obtained from the Local Area Unemployment Statistics (LAUS) program, which is conducted in cooperation with State employment security agencies.

Monthly estimates of the labor force, employment, and unemployment for States and sub-State areas are a key indicator of local economic conditions, and form the basis for determining the eligibility of an area for benefits under Federal economic assistance programs such as the Job Training Partnership Act. Seasonally adjusted unemployment rates are presented in table 10. Insofar as possible, the concepts and definitions underlying these data are those used in the national estimates obtained from the CPS.

Notes on the data

Data refer to State of residence. Monthly data for all States and the District of Columbia are derived using standardized procedures established by BLS. Once a year, estimates are revised to new population controls, usually with publication of January estimates, and benchmarked to annual average CPS levels.

FOR ADDITIONAL INFORMATION on data in this series, call (202) 606–6392 (table 10) or (202) 606–6589 (table 11).

Compensation and Wage Data

(Tables 1–3; 21–27)

COMPENSATION AND WAGE DATA are gathered by the Bureau from business establishments, State and local governments, labor unions, collective bargaining agreements on file with the Bureau, and secondary sources.

Employment Cost Index

Description of the series

The **Employment Cost Index** (ECI) is a quarterly measure of the rate of change in compensation per hour worked and includes wages, salaries, and employer costs of employee benefits. It uses a fixed market basket of labor—similar in concept to the Consumer Price Index's fixed market basket of goods and services—to measure change over time in employer costs of employing labor.

Statistical series on total compensation costs, on wages and salaries, and on benefit costs are available for private nonfarm workers excluding proprietors, the self-employed, and household workers. The total compensation costs and wages and salaries series are also available for State and local government workers and for the civilian nonfarm economy, which consists of private industry and State and local government workers combined. Federal workers are excluded.

The Employment Cost Index probability sample consists of about 4,400 private nonfarm establishments providing about 23,000 occupational observations and 1,000 State and local government establishments providing 6,000 occupational observations selected to represent total employment in each sector. On average, each reporting unit provides wage and compensation information on five well-specified occupations. Data are collected each quarter for the pay period including the 12th day of March, June, September, and December.

Beginning with June 1986 data, fixed employment weights from the 1980 Census of Population are used each quarter to calculate the civilian and private indexes and the index for State and local governments. (Prior to June 1986, the employment weights are from the 1970 Census of Population.) These fixed weights, also used to derive all of the industry and occupation series indexes, ensure that changes in these indexes reflect only changes in compensa-

tion, not employment shifts among industries or occupations with different levels of wages and compensation. For the bargaining status, region, and metropolitan/nonmetropolitan area series, however, employment data by industry and occupation are not available from the census. Instead, the 1980 employment weights are reallocated within these series each quarter based on the current sample. Therefore, these indexes are not strictly comparable to those for the aggregate, industry, and occupation series.

Definitions

Total compensation costs include wages, salaries, and the employer's costs for employee benefits.

Wages and salaries consist of earnings before payroll deductions, including production bonuses, incentive earnings, commissions, and cost-of-living adjustments.

Benefits include the cost to employers for paid leave, supplemental pay (including nonproduction bonuses), insurance, retirement and savings plans, and legally required benefits (such as Social Security, workers' compensation, and unemployment insurance).

Excluded from wages and salaries and employee benefits are such items as payment-in-kind, free room and board, and tips.

Notes on the data

The Employment Cost Index for changes in wages and salaries in the private nonfarm economy was published beginning in 1975. Changes in total compensation cost—wages and salaries and benefits combined—were published beginning in 1980. The series of changes in wages and salaries and for total compensation in the State and local government sector and in the civilian nonfarm economy (excluding Federal employees) were published beginning in 1981. Historical indexes (June 1981=100) are available on the Internet:

http://stats.bls.gov/ecthome.htm

FOR ADDITIONAL INFORMATION on the Employment Cost Index, contact the Office of Compensation Levels and Trends: (202) 606–6199.

Employee Benefits Survey

Description of the series

Employee benefits data are obtained from the Employee Benefits Survey, an annual survey of the incidence and provisions of selected benefits provided by employers. The survey collects data from a sample of approximately 6,000 private sector and State and local government establishments. The data are presented as a percentage of employees who participate in a certain benefit, or as an average benefit provision (for example, the average number of paid holidays provided to employees per year). Selected data from the survey are presented in table 25 for medium and large private establishments and in table 26 for small private establishments and State and local government.

The survey covers paid leave benefits such as lunch and rest periods, holidays and vacations, and personal, funeral, jury duty, military, parental, and sick leave; sickness and accident, long-term disability, and life insurance; medical, dental, and vision care plans; defined benefit and defined contribution plans; flexible benefits plans; reimbursement accounts; and unpaid parental leave.

Also, data are tabulated on the incidence of several other benefits, such as severance pay, child-care assistance, wellness programs, and employee assistance programs.

Definitions

Employer-provided benefits are benefits that are financed either wholly or partly by the employer. They may be sponsored by a union or other third party, as long as there is some employer financing. However, some benefits that are fully paid for by the employee also are included. For example, long-term care insurance and postretirement life insurance paid entirely by the employee are included because the guarantee of insurability and availability at group premium rates are considered a benefit.

Participants are workers who are covered by a benefit, whether or not they use that benefit. If the benefit plan is financed wholly by employers and requires employees to complete a minimum length of service for eligibility, the workers are considered participants whether or not they have met the requirement. If workers are required to contribute towards the cost of a plan, they are considered participants only if they elect the plan and agree to make the required contributions.

Defined benefit pension plans use predetermined formulas to calculate a retirement benefit, and obligate the employer to provide those benefits. Benefits are generally based on salary, years of service, or both.

Defined contribution plans generally specify the level of employer and employee contributions to a plan, but not the formula for determining eventual benefits. Instead, individual accounts are set up for participants, and benefits are based on amounts credited to these accounts.

Tax-deferred savings plans are a type of defined contribution plan that allow participants to contribute a portion of their salary to an employer-sponsored plan and defer income taxes until withdrawal.

Flexible benefit plans allow employees to choose among several benefits, such as life insurance, medical care, and vacation days, and among several levels of care within a given benefit.

Notes on the data

Surveys of employees in medium and large establishments conducted over the 1979–86 period included establishments that employed at least 50, 100, or 250 workers, depending on the industry (most service industries were excluded). The survey conducted in 1987 covered only State and local governments with 50 or more employees. The surveys conducted in 1988 and 1989 included medium and large establishments with 100 workers or more in private industries. All surveys conducted over the 1979–89 period excluded establishments in Alaska and Hawaii, as well as part-time employees.

Beginning in 1990, surveys of State and local governments and small establishments are conducted in even-numbered years and surveys of medium and large establishments are conducted in odd-numbered years. The small establishment survey includes all private nonfarm establishments with fewer than 100 workers, while the State and local government survey includes all governments, regardless of the number of workers. All three surveys include full- and part-time workers, and workers in all 50 States and the District of Columbia.

FOR ADDITIONAL INFORMATION on the Employee Benefits Survey, contact the Office of Compensation Levels and Trends (202) 606–6222 or the Internet:

http://stats.bls.gov/ebshome.htm

Work stoppages

Description of the series

Data on work stoppages measure the number and duration of major strikes or lockouts (involving 1,000 workers or more) occurring during the month (or year), the number of workers involved, and the amount of time lost because of stoppage. These data are presented in table 27.

Data are largely from newspaper accounts and cover only establishments directly involved in a stoppage. They do not measure the indirect or secondary effect of stoppages on other establishments whose employees are idle owing to material shortages or lack of service.

Definitions

Number of stoppages: The number of

strikes and lockouts involving 1,000 workers or more and lasting a full shift or longer.

Workers involved: The number of workers directly involved in the stoppage.

Number of days idle: The aggregate number of workdays lost by workers involved in the stoppages.

Days of idleness as a percent of estimated working time: Aggregate workdays lost as a percent of the aggregate number of standard workdays in the period multiplied by total employment in the period.

Notes on the data

This series is not comparable with the one terminated in 1981 that covered strikes involving six workers or more.

FOR ADDITIONAL INFORMATION on work stoppages data, contact the Office of Compensation Levels and Trends: (202) 606–6282, or the Internet:

http://stats.bls.gov//lmrhome.htm

Price Data

(Tables 2; 28–38)

PRICE DATA are gathered by the Bureau of Labor Statistics from retail and primary markets in the United States. Price indexes are given in relation to a base period—1982 = 100 for many Producer Price Indexes, 1982–84 = 100 for many Consumer Price Indexes (unless otherwise noted), and 1990 = 100 for International Price Indexes.

Consumer Price Indexes

Description of the series

The **Consumer Price Index** (CPI) is a measure of the average change in the prices paid by urban consumers for a fixed market basket of goods and services. The CPI is calculated monthly for two population groups, one consisting only of urban households whose primary source of income is derived from the employment of wage earners and clerical workers, and the other consisting of all urban households. The wage earner index (CPI-W) is a continuation of the historic index that was introduced well over a half-century ago for use in wage negotiations. As new uses were developed for the CPI in recent years, the need for a broader and more representative index became apparent. The all-urban consumer index (CPI-U), introduced in 1978, is representative of the 1993–95 buying habits of about 87 percent of the noninstitutional population of the United States at that time, compared with 32 percent represented in the CPI-W. In addition to wage earners and clerical workers, the CPI-U covers professional, managerial, and technical workers, the self-employed, short-term workers, the unemployed, retirees, and others not in the labor force.

The CPI is based on prices of food, clothing, shelter, fuel, drugs, transportation fares, doctors' and dentists' fees, and other goods and services that people buy for day-to-day living. The quantity and quality of these items are kept essentially unchanged between major revisions so that only price changes will be measured. All taxes directly associated with the purchase and use of items are included in the index.

Data collected from more than 23,000 retail establishments and 5,800 housing units in 87 urban areas across the country are used to develop the "U.S. city average." Separate estimates for 14 major urban centers are presented in table 29. The areas listed are as indicated in footnote 1 to the table. The area indexes measure only the average change in prices for each area since the base period, and do not indicate differences in the level of prices among cities.

Notes on the data

In January 1983, the Bureau changed the way in which homeownership costs are meaured for the CPI-U. A rental equivalence method replaced the asset-price approach to homeownership costs for that series. In January 1985, the same change was made in the CPI-W. The central purpose of the change was to separate shelter costs from the investment component of home-ownership so that the index would reflect only the cost of shelter services provided by owner-occupied homes. An updated CPI-U and CPI-W were introduced with release of the January 1987 data.

FOR ADDITIONAL INFORMATION on consumer prices, contact the Division of Consumer Prices and Price Indexes: (202) 606–7000.

Producer Price Indexes

Description of the series

Producer Price Indexes (PPI) measure average changes in prices received by domestic producers of commodities in all stages of processing. The sample used for calculating these indexes currently contains about 3,200 commodities and about 80,000 quotations per month, selected to represent the movement of prices of all commodities produced in the manufacturing; agriculture, forestry, and fishing; mining; and gas and electricity and public utilities sectors. The stage-of-processing structure of PPI organizes products by class of buyer and degree of fabrication (that is, finished goods, intermediate goods, and crude materials). The traditional commodity structure of PPI organizes products by similarity of end use or material composition. The industry and product structure of PPI organizes data in accordance with the Standard Industrial Classification (SIC) and the product code extension of the SIC developed by the U.S. Bureau of the Census.

To the extent possible, prices used in calculating Producer Price Indexes apply to the first significant commercial transaction in the United States from the production or central marketing point. Price data are generally collected monthly, primarily by mail questionnaire. Most prices are obtained directly from producing companies on a voluntary and confidential basis. Prices generally are reported for the Tuesday of the week containing the 13th day of the month.

Since January 1992, price changes for the various commodities have been averaged together with implicit quantity weights representing their importance in the total net selling value of all commodities as of 1987. The detailed data are aggregated to obtain indexes for stage-of-processing groupings, commodity groupings, durability-of-product groupings, and a number of special composite groups. All Producer Price Index data are subject to revision 4 months after original publication.

FOR ADDITIONAL INFORMATION on producer prices, contact the Division of Industrial Prices and Price Indexes: (202) 606–7705.

International Price Indexes

Description of the series

The **International Price Program** produces monthly and quarterly export and import price indexes for nonmilitary goods traded between the United States and the rest of the world. The export price index provides a measure of price change for all products sold by U.S. residents to foreign buyers. ("Residents" is defined as in the national income accounts; it includes corporations, businesses, and individuals, but does not require the organizations to be U.S. owned nor the individuals to have U.S. citizenship.) The import price index provides a measure of price change for goods purchased from other countries by U.S. residents.

The product universe for both the import and export indexes includes raw materials, agricultural products, semifinished manufactures, and finished manufactures, including both capital and consumer goods. Price data for these items are collected primarily by mail questionnaire. In nearly all cases, the data are collected directly from the exporter or importer, although in a few cases, prices are obtained from other sources.

To the extent possible, the data gathered

refer to prices at the U.S. border for exports and at either the foreign border or the U.S. border for imports. For nearly all products, the prices refer to transactions completed during the first week of the month. Survey respondents are asked to indicate all discounts, allowances, and rebates applicable to the reported prices, so that the price used in the calculation of the indexes is the actual price for which the product was bought or sold.

In addition to general indexes of prices for U.S. exports and imports, indexes are also published for detailed product categories of exports and imports. These categories are defined according to the five-digit level of detail for the Bureau of Economic Analysis End-use Classification (SITC), and the four-digit level of detail for the Harmonized System. Aggregate import indexes by country or region of origin are also available.

BLS publishes indexes for selected categories of internationally traded services, calculated on an international basis and on a balance-of-payments basis.

Notes on the data

The export and import price indexes are weighted indexes of the Laspeyres type. Price relatives are assigned equal importance within each harmonized group and are then aggregated to the higher level. The values assigned to each weight category are based on trade value figures compiled by the Bureau of the Census. The trade weights currently used to compute both indexes relate to 1990.

Because a price index depends on the same items being priced from period to period, it is necessary to recognize when a product's specifications or terms of transaction have been modified. For this reason, the Bureau's questionnaire requests detailed descriptions of the physical and functional characteristics of the products being priced, as well as information on the number of units bought or sold, discounts, credit terms, packaging, class of buyer or seller, and so forth. When there are changes in either the specifications or terms of transaction of a product, the dollar value of each change is deleted from the total price change to obtain the "pure" change. Once this value is determined, a linking procedure is employed which allows for the continued repricing of the item.

For the export price indexes, the preferred pricing is f.a.s. (free alongside ship) U.S. port of exportation. When firms report export prices f.o.b. (free on board), production point information is collected which enables the Bureau to calculate a shipment cost to the port of exportation. An attempt is made to collect two prices for imports. The first is the import price f.o.b. at the foreign port of exportation, which is consistent with the basis for valuation of imports in the national accounts. The second is the import price c.i.f.(costs, insurance, and freight) at the U.S. port of importation, which also includes the other costs associated with bringing the product to the U.S. border. It does not, however, include duty charges. For a given product, only one price basis series is used in the construction of an index.

FOR ADDITIONAL INFORMATION on international prices, contact the Division of International Prices: (202) 606–7155.

Productivity Data

(Tables 2; 39–42)

Business sector and major sectors

Description of the series

The productivity measures relate real output to real input. As such, they encompass a family of measures which include single-factor input measures, such as output per unit of labor input (output per hour) or output per unit of capital input, as well as measures of multifactor productivity (output per unit of combined labor and capital inputs). The Bureau indexes show the change in output relative to changes in the various inputs. The measures cover the business, nonfarm business, manufacturing, and nonfinancial corporate sectors.

Corresponding indexes of hourly compensation, unit labor costs, unit nonlabor payments, and prices are also provided.

Definitions

Output per hour of all persons (labor productivity) is the quantity of goods and services produced per hour of labor input. **Output per unit of capital services** (capital productivity) is the quantity of goods and services produced per unit of capital services input. **Multifactor productivity** is the quantity of goods and services produced per combined unit of labor and capital inputs.

Compensation per hour is total compensation divided by hours at work. Total compensation equals the wages and salaries of employees plus employers' contributions for social insurance and private benefit plans, plus an estimate of these payments for the self-employed (except for nonfinancial corporations in which there are no self-employed). **Real compensation per hour** is compensation per hour deflated by the change in the Consumer Price Index for All Urban Consumers.

Unit labor costs are the labor compensation costs expended in the production of a unit of output and are derived by dividing compensation by output. **Unit nonlabor payments** include profits, depreciation, interest, and indirect taxes per unit of output. They are computed by subtracting compensation of all persons from current-dollar value of output and dividing by output.

Unit nonlabor costs contain all the components of unit nonlabor payments except unit profits.

Unit profits include corporate profits with inventory valuation and capital consumption adjustments per unit of output.

Hours of all persons are the total hours at work of payroll workers, self-employed persons, and unpaid family workers.

Labor inputs are hours of all persons adjusted for the effects of changes in the education and experience of the labor force.

Capital services are the flow of services from the capital stock used in production. It is developed from measures of the net stock of physical assets—equipment, structures, land, and inventories—weighted by rental prices for each type of asset.

Combined units of labor and capital inputs are derived by combining changes in labor and capital input with weights which represent each component's share of total output. The indexes for capital services, labor inputs, and combined units of labor and capital are based on changing weights which are averages of the shares in the current and preceding year (the Tornquist index-number formula).

Notes on the data

Business sector output is an annually-weighted index constructed by excluding from real gross domestic product (GDP) the following outputs: general government, nonprofit institutions, paid employees of private households, and the rental value of owner-occupied dwellings. Nonfarm business also excludes farming. Private business and private nonfarm business further exclude government enterprises. The measures are supplied by the U.S. Department of Commerce's Bureau of Economic Analysis. Annual estimates of manufacturing sectoral output are produced by the Bureau of Labor Statistics. Quarterly manufacturing output indexes from the Federal Reserve Board are adjusted to these annual output measures by the BLS. Compensation data are developed from data of the Bureau of Economic Analysis and the Bureau of Labor Statistics. Hours data are developed from data of the Bureau of Labor Statistics.

The productivity and associated cost measures in tables 39–42 describe the relationship between output in real terms and the labor and capital inputs involved in its production. They show the changes from period to period in the amount of goods and

services produced per unit of input.

Although these measures relate output to hours and capital services, they do not measure the contributions of labor, capital, or any other specific factor of production. Rather, they reflect the joint effect of many influences, including changes in technology; shifts in the composition of the labor force; capital investment; level of output; changes in the utilization of capacity, energy, material, and research and development; the organization of production; managerial skill; and characteristics and efforts of the work force.

FOR ADDITIONAL INFORMATION on this productivity series, contact the Division of Productivity Research: (202) 606–5606.

Industry productivity measures

Description of the series

The BLS industry productivity data supplement the measures for the business economy and major sectors with annual measures of labor productivity for selected industries at the three- and four-digit levels of the Standard Industrial Classification system. The industry measures differ in methodology and data sources from the productivity measures for the major sectors because the industry measures are developed independently of the National Income and Product Accounts framework used for the major sector measures.

Definitions

Output per employee hour is derived by dividing an index of industry output by an index of aggregate hours of all employees. Output indexes are based on quantifiable units of products or services, or both, combined with value-share weights. Whenever possible, physical quantities are used as the unit of measurement for output. If quantity data are not available for a given industry, data on the constant-dollar value of production are used.

The **labor input** series consist of the hours of all employees (production and nonproduction workers), the hours of all persons (paid employees, partners, proprietors, and unpaid family workers), or the number of employees, depending upon the industry.

Notes on the data

The industry measures are compiled from data produced by the Bureau of Labor Statistics, the Departments of Commerce, Interior, and Agriculture, the Federal Reserve Board, regulatory agencies, trade associations, and other sources.

For most industries, the productivity indexes refer to the output per hour of all employees. For some transportation industries, only indexes of output per employee are prepared. For some trade and service industries, indexes of output per hour of all persons (including self-employed) are constructed.

FOR ADDITIONAL INFORMATION on this series, contact the Division of Industry Productivity Studies: (202) 606–5618.

International Comparisons

(Tables 43–45)

Labor force and unemployment

Description of the series

Tables 43 and 44 present comparative measures of the labor force, employment, and unemployment—approximating U.S. concepts—for the United States, Canada, Australia, Japan, and several European countries. The unemployment statistics (and, to a lesser extent, employment statistics) published by other industrial countries are not, in most cases, comparable to U.S. unemployment statistics. Therefore, the Bureau adjusts the figures for selected countries, where necessary, for all known major definitional differences. Although precise comparability may not be achieved, these adjusted figures provide a better basis for international comparisons than the figures regularly published by each country.

Definitions

For the principal U.S. definitions of the **labor force**, **employment**, and **unemployment**, see the Notes section on Employment and Unemployment Data: Household survey data.

Notes on the data

The adjusted statistics have been adapted to the age at which compulsory schooling ends in each country, rather than to the U.S. standard of 16 years of age and older. Therefore, the adjusted statistics relate to the population aged 16 and older in France, Sweden, and the United Kingdom; 15 and older in Canada, Australia, Japan, Germany, Italy from 1993 onward, and the Netherlands; and 14 and older in Italy prior to 1993. The institutional population is included in the denominator of the labor force participation rates and employment-population ratios for Japan and Germany; it is excluded for the United States and the other countries.

In the U.S. labor force survey, persons on layoff who are awaiting recall to their jobs are classified as unemployed. European and Japanese layoff practices are quite different in nature from those in the United States; therefore, strict application of the U.S. definition has not been made on this point. For further information, see *Monthly Labor Review*, December 1981, pp. 8–11.

The figures for one or more recent years for France, Germany, Italy, the Netherlands, and the United Kingdom are calculated using adjustment factors based on labor force surveys for earlier years and are considered preliminary. The recent-year measures for these countries, therefore, are subject to revision whenever data from more current labor force surveys become available.

There are breaks in the data series for the United States (1990, 1994), France (1992), Italy (1991, 1993), the Netherlands (1988), and Sweden (1987).

For the United States, the break in series reflects a major redesign of the labor force survey questionnaire and collection methodology introduced in January 1994. Revised population estimates based on the 1990 census, adjusted for the estimated undercount, also were incorporated. In 1996, previously published data for the 1990–93 period were revised to reflect the 1990 census-based population controls, adjusted for the undercount. Therefore, data for 1994 onward are not directly comparable with data for 1993 and earlier years because of the redesign, and data for 1990 onward are not directly comparable with data for 1989 and earlier years because of the introduction of the 1990 census-based population controls, adjusted for the undercount. See the Notes section on Employment and Unemployment Data of this *Review*.

For France, the 1992 break reflects the substitution of standardized European Union Statistical Office (EUROSTAT) unemployment statistics for the unemployment data estimated according to the International Labor Office (ILO) definition and published in the Organization for Economic Cooperation and Development (OECD) annual yearbook and quarterly update. This change was made because the EUROSTAT data are more up-to-date than the OECD figures. Also, since 1992, the EUROSTAT definitions are closer to the U.S. definitions than they were in prior years. The impact of this revision was to lower the unemployment rate by 0.1 percentage point in 1992 and 1993, by 0.4 percentage point in 1994, and 0.6 percentage point in 1995.

For Italy, the 1991 break reflects a revision in the method of weighting sample data. The impact was to increase the unemployment rate by approximately 0.3 percentage point, from 6.6 to 6.9 percent in 1991.

In October 1992, the survey methodology was revised and the definition of unem-

ployment was changed to include only those who were actively looking for a job within the 30 days preceding the survey and who were available for work. In addition, the lower age limit for the labor force was raised from 14 to 15 years. (Prior to these changes, BLS adjusted Italy's published unemployment rate downward by excluding from the unemployed those persons who had not actively sought work in the past 30 days.) The break in the series also reflects the incorporation of the 1991 population census results. The impact of these changes was to raise Italy's adjusted unemployment rate by approximately 1.2 percentage points, from 8.3 to 9.5 percent in fourth-quarter 1992. These changes did not affect employment significantly, except in 1993. Estimates by the Italian Statistical Office indicate that employment declined by about 3 percent in 1993, rather than the nearly 4 percent indicated by the data shown in table 44. This difference is attributable mainly to the incorporation of the 1991 population benchmarks in the 1993 data. Data for earlier years have not been adjusted to incorporate the 1991 census results.

For the Netherlands, a new survey questionnaire was introduced in 1992 that allowed for a closer application of ILO guidelines. EUROSTAT has revised the Dutch series back to 1988 based on the 1992 changes. The 1988 revised unemployment rate is 7.6 percent; the previous estimate for the same year was 9.3 percent.

There have been two breaks in series in the Swedish labor force survey, in 1987 and 1993. Adjustments have been made for the 1993 break back to 1987. In 1987, a new questionnaire was introduced. Questions regarding current availability were added and the period of active workseeking was reduced from 60 days to 4 weeks. These changes lowered Sweden's 1987 unemployment rate by 0.4 percentage point, from 2.3 to 1.9 percent. In 1993, the measurement period for the labor force survey was changed to represent all 52 weeks of the year rather than one week each month and a new adjustment for population totals was introduced. The impact was to raise the unemployment rate by approximately 0.5 percentage point, from 7.6 to 8.1 percent. Statistics Sweden revised its labor force survey data for 1987–92 to take into account the break in 1993. The adjustment raised the Swedish unemployment rate by 0.2 percentage point in 1987 and gradually rose to 0.5 percentage point in 1992.

Beginning with 1987, BLS has adjusted the Swedish data to classify students who also sought work as unemployed. The impact of this change was to increase the adjusted unemployment rate by 0.1 percentage point in 1987 and by 1.8 percentage points in 1994, when unemployment was higher. By 1994, the adjusted unemployment rate had risen from 7.8 to 9.6 percent due to the adjustment to include students.

The net effect of the 1987 and 1993 changes and the BLS adjustment for students seeking work lowered Sweden's 1987 unemployment rate from 2.3 to 2.2 percent.

FOR ADDITIONAL INFORMATION on this series, contact the Division of Foreign Labor Statistics: (202) 606–5654.

Manufacturing productivity and labor costs

Description of the series

Table 45 presents comparative indexes of manufacturing labor productivity (output per hour), output, total hours, compensation per hour, and unit labor costs for the United States, Canada, Japan, and nine European countries. These measures are trend comparisons—that is, series that measure changes over time—rather than level comparisons. There are greater technical problems in comparing the levels of manufacturing output among countries.

BLS constructs the comparative indexes from three basic aggregate measures—output, total labor hours, and total compensation. The hours and compensation measures refer to all employed persons (wage and salary earners plus self-employed persons and unpaid family workers) in the United States, Canada, Japan, France, Germany, Norway, and Sweden, and to all employees (wage and salary earners) in the other countries.

Definitions

Output, in general, refers to value added in manufacturing from the national accounts of each country. However, the output series for Japan prior to 1970 is an index of industrial production, and the national accounts measures for the United Kingdom are essentially identical to their indexes of industrial production. While methods of deriving national accounts measures differ from country to country, BLS has reviewed these methods and determined that the series are sufficiently comparable for measuring comparative trends in productivity and unit labor costs.

The 1977–94 output data for the United States are the gross product originating (value added) measures prepared by the Bureau of Economic Analysis of the U.S. Department of Commerce. Comparable manufacturing output data currently are not available prior to 1977. The 1994–95 percent changes in manufacturing output are based on the trend shown by the industrial production index published by the U.S. Federal Reserve Board for the manufacturing sector.

U.S. gross product originating is a chain-type annual-weighted series. (For more information on the U.S. measure, see Robert E. Yuskavage, "Improved Estimates of Gross Product by Industry, 1959–94," *Survey of Current Business*, August 1996, pp. 133–55.) The Japanese value added series is based upon one set of fixed price weights for the years 1970 through 1996. Output series for the other foreign economies also employ fixed price weights, but the weights are updated periodically (for example, every 5 or 10 years).

To preserve the comparability of the U.S. measures with those for other economies, BLS uses gross product originating in manufacturing for the United States for these comparative measures. The gross product originating series differs from the manufacturing output series that BLS publishes in its news releases on quarterly measures of U.S. productivity and costs (and that underlies the measures that appear in tables 39 and 41 in this section). The quarterly measures are on a "sectoral output" basis, rather than a value-added basis. Sectoral output is gross output less intrasector transactions.

Total labor hours refers to hours worked in all countries. The measures are developed from statistics of manufacturing employment and average hours. The series used for France (from 1970 forward), Norway, and Sweden are official series published with the national accounts. Where official total hours series are not available, the measures are developed by BLS using employment figures published with the national accounts, or other comprehensive employment series, and estimates of annual hours worked. For Germany, BLS uses estimates of average hours worked developed by a research institute connected to the Ministry of Labor for use with the national accounts employment figures. For the other countries, BLS constructs its own estimates of average hours.

Denmark has not published estimates of average hours for 1994–96; therefore, the BLS measure of labor input for Denmark ends in 1993.

Total compensation (labor cost) includes all payments in cash or in-kind made directly to employees plus employer expenditures for legally required insurance programs and contractual and private benefit plans. The measures are from the national accounts of each country, except those for Belgium, which are developed by BLS using statistics on employment, average hours, and hourly compensation. For France and Sweden, compensation is increased to account for other significant taxes on payroll or employment. For the United Kingdom, compensation is reduced between 1967 and 1991 to account for employment-related subsidies. Self-employed workers are included in the all-employed-persons measures by assuming

that their hourly compensation is equal to the average for wage and salary employees.

Notes on the data

In general, the measures relate to total manufacturing as defined by the International Standard Industrial Classification. However, the measures for France (for all years) and Italy (beginning 1970) refer to mining and manufacturing less energy-related products, and the measures for Denmark include mining and exclude manufacturing handicrafts from 1960 to 1966.

The measures for recent years may be based on current indicators of manufacturing output (such as industrial production indexes), employment, average hours, and hourly compensation until national accounts and other statistics used for the long-term measures become available.

FOR ADDITIONAL INFORMATION on this series, contact the Division of Foreign Labor Statistics: (202) 606–5654.

Occupational Injury and Illness Data

(Table 46–47)

Survey of Occupational Injuries and Illnesses

Description of the series

The Survey of Occupational Injuries and Illnesses collects data from employers about their workers' job-related nonfatal injuries and illnesses. The information that employers provide is based on records that they maintain under the Occupational Safety and Health Act of 1970. Self-employed individuals, farms with fewer than 11 employees, employers regulated by other Federal safety and health laws, and Federal, State, and local government agencies are excluded from the survey.

The survey is a Federal-State cooperative program with an independent sample selected for each participating State. A stratified random sample with a Neyman allocation is selected to represent all private industries in the State. The survey is stratified by Standard Industrial Classification and size of employment.

Definitions

Under the Occupational Safety and Health Act, employers maintain records of nonfatal work-related injuries and illnesses that involve one or more of the following: loss of consciousness, restriction of work or motion, transfer to another job, or medical treatment other than first aid.

Occupational injury is any injury such as a cut, fracture, sprain, or amputation that results from a work-related event or a single, instantaneous exposure in the work environment.

Occupational illness is an abnormal condition or disorder, other than one resulting from an occupational injury, caused by exposure to factors associated with employment. It includes acute and chronic illnesses or disease which may be caused by inhalation, absorption, ingestion, or direct contact.

Lost workday injuries and illnesses are cases that involve days away from work, or days of restricted work activity, or both.

Lost workdays include the number of workdays (consecutive or not) on which the employee was either away from work or at work in some restricted capacity, or both, because of an occupational injury or illness. BLS measures of the number and incidence rate of lost workdays were discontinued beginning with the 1993 survey. The number of days away from work or days of restricted work activity does not include the day of injury or onset of illness or any days on which the employee would not have worked, such as a Federal holiday, even though able to work.

Incidence rates are computed as the number of injuries and/or illnesses or lost work days per 100 full-time workers.

Notes on the data

The definitions of occupational injuries and illnesses are from *Recordkeeping Guidelines for Occupational Injuries and Illnesses* (U.S. Department of Labor, Bureau of Labor Statistics, September 1986).

Estimates are made for industries and employment size classes for total recordable cases, lost workday cases, days away from work cases, and nonfatal cases without lost workdays. These data also are shown separately for injuries. Illness data are available for seven categories: occupational skin diseases or disorders, dust diseases of the lungs, respiratory conditions due to toxic agents, poisoning (systemic effects of toxic agents), disorders due to physical agents (other than toxic materials), disorders associated with repeated trauma, and all other occupational illnesses.

The survey continues to measure the number of new work-related illness cases which are recognized, diagnosed, and reported during the year. Some conditions, for example, long-term latent illnesses caused by exposure to carcinogens, often are difficult to relate to the workplace and are not adequately recognized and reported. These long-term latent illnesses are believed to be understated in the survey's illness measure. In contrast, the overwhelming majority of the reported new illnesses are those which are easier to directly relate to workplace activity (for example, contact dermatitis and carpal tunnel syndrome).

Most of the estimates are in the form of incidence rates, defined as the number of injuries and illnesses per 100 equivalent full-time workers. For this purpose, 200,000 employee hours represent 100 employee years (2,000 hours per employee). Full detail on the available measures is presented in the annual bulletin, *Occupational Injuries and Illnesses: Counts, Rates, and Characteristics.*

Comparable data for more than 40 States and territories are available from the BLS Office of Safety, Health and Working Conditions. Many of these States publish data on State and local government employees in addition to private industry data.

Mining and railroad data are furnished to BLS by the Mine Safety and Health Administration and the Federal Railroad Administration. Data from these organizations are included in both the national and State data published annually.

With the 1992 survey, BLS began publishing details on serious, nonfatal incidents resulting in days away from work. Included are some major characteristics of the injured and ill workers, such as occupation, age, gender, race, and length of service, as well as the circumstances of their injuries and illnesses (nature of the disabling condition, part of body affected, event and exposure, and the source directly producing the condition). In general, these data are available nationwide for detailed industries and for individual States at more aggregated industry levels.

FOR ADDITIONAL INFORMATION on occupational injuries and illnesses, contact the Office of Occupational Safety, Health and Working Conditions at (202) 606–6180, or access the Internet at:
http://www.bls.gov/oshhome.htm

Census of Fatal Occupational Injuries

The Census of Fatal Occupational Injuries compiles a complete roster of fatal job-related injuries, including detailed data about the fatally injured workers and the fatal events. The program collects and cross checks fatality information from multiple sources, including death certificates, State and Federal workers' compensation reports, Occupational Safety and Health Administration and Mine Safety and Health Administration records, medical examiner and autopsy reports, media accounts, State motor vehicle fatality records, and follow-up questionnaires to employers.

In addition to private wage and salary workers, the self-employed, family members, and Federal, State, and local government workers are covered by the program.

Institutionalized persons, such as prison inmates, are excluded. To be included in the fatality census, the decedent must have been employed (that is working for pay, compensation, or profit) at the time of the event, engaged in a legal work activity, or present at the site of the incident as a requirement of his or her job.

Definition

A fatal work injury is any intentional or unintentional wound or damage to the body resulting in death from acute exposure to energy, such as heat or electricity or kinetic energy from a crash, or from the absence of such essentials as heat or oxygen caused by a specific event or incident or series of events within a single workday or shift. Fatalities that occur during a person's commute to or from work are excluded from the census, as well as work-related illnesses, which can be difficult to identify due to long latency periods.

Notes on the data

Twenty-eight data elements are collected, coded, and tabulated in the fatality program, including information about the fatally injured worker, the fatal incident, and the machinery or equipment involved. Summary worker demographic data and event characteristics are included in a national news release that is available about 8 months after the end of the reference year. The Census of Fatal Occupational Injuries was initiated in 1992 as a joint Federal-State effort. Most States issue summary information at the time of the national news release.

FOR ADDITIONAL INFORMATION on the Census of Fatal Occupational Injuries contact the BLS Office of Safety, Health, and Working Conditions at (202) 606–6175, or the Internet at:

http://www.bls.gov/oshhome.htm

1. Labor market indicators

Selected indicators	1996	1997	1996				1997			
			I	II	III	IV	I	II	III	IV
Employment data										
Employment status of the civilian noninstitutionalized population (household survey):[1]										
Labor force participation rate	66.8	67.1	66.6	66.7	66.8	67.0	67.1	67.1	67.1	67.1
Employment-population ratio	63.2	63.8	62.9	63.1	63.3	63.4	63.6	63.8	63.8	64.0
Unemployment rate	5.4	4.9	5.6	5.4	5.3	5.3	5.3	4.9	4.9	4.7
Men	5.4	4.9	5.6	5.5	5.3	5.2	5.2	4.8	4.8	4.7
16 to 24 years	12.6	11.8	13.0	12.7	12.4	12.3	12.4	11.4	11.8	11.6
25 years and over	4.1	3.6	4.3	4.1	3.9	3.9	3.9	3.6	3.5	3.4
Women	5.4	5.0	5.5	5.4	5.3	5.4	5.4	5.1	5.0	4.7
16 to 24 years	11.3	10.7	11.8	11.0	11.1	11.4	11.5	10.9	10.5	10.1
25 years and over	4.3	3.9	4.3	4.3	4.2	4.3	4.2	3.9	3.9	3.6
Employment, nonfarm (payroll data), in thousands:[1]										
Total	119,523	122,259	118,471	119,248	119,898	120,452	121,138	121,854	122,575	123,487
Private sector	100,076	102,605	99,111	99,831	100,392	100,953	101,598	102,259	102,829	103,726
Goods-producing	24,431	24,738	24,336	24,428	24,447	24,509	24,635	24,694	24,750	24,897
Manufacturing	18,457	18,537	18,473	18,467	18,443	18,444	18,476	18,504	18,541	18,632
Service-producing	95,092	97,521	94,135	94,821	95,451	95,943	96,504	97,159	97,825	98,591
Average hours:										
Private sector	34.4	34.6	34.2	34.4	34.5	34.5	34.7	34.5	34.5	34.6
Manufacturing	41.6	42.0	40.9	41.6	41.7	41.8	41.9	42.0	41.8	42.1
Overtime	4.5	4.8	4.3	4.5	4.5	4.6	4.8	4.8	4.7	4.9
Employment Cost Index[2]										
Percent change in the ECI, compensation:										
All workers (excluding farm, household and Federal workers)	2.9	3.3	.9	.7	.8	.5	.8	.6	1.0	.8
Private industry workers	3.1	3.4	.9	.9	.6	.6	.8	.8	.8	.9
Goods-producing[3]	2.8	2.4	.7	.9	.6	.6	.4	1.0	.7	.4
Service-producing[3]	3.2	3.9	1.1	.8	.7	.5	1.1	.7	1.0	1.1
State and local government workers	2.6	2.3	.5	.2	1.3	.6	.4	.1	1.3	.5
Workers by bargaining status (private industry):										
Union	2.4	2.1	.6	.9	.3	.5	.2	.6	1.1	.2
Nonunion	3.1	3.8	.9	.8	.8	.5	1.1	.8	.8	1.0

[1] Quarterly data seasonally adjusted.

[2] Annual changes are December-to-December changes. Quarterly changes are calculated using the last month of each quarter.

[3] Goods-producing industries include mining, construction, and manufacturing. Service-producing industries include all other private sector industries.

2. Annual and quarterly percent changes in compensation, prices, and productivity

Selected measures	1996	1997	1996				1997			
			I	II	III	IV	I	II	III	IV
Compensation data[1,2]										
Employment Cost Index—compensation (wages, salaries, benefits):										
Civilian nonfarm	2.9	3.3	0.9	0.7	0.8	0.5	0.8	0.6	1.0	0.8
Private nonfarm	3.1	3.4	.9	.9	.6	.6	.8	.8	.8	.9
Employment Cost Index—wages and salaries:										
Civilian nonfarm	3.3	3.8	1.0	.8	.9	.6	.9	.7	1.2	.9
Private nonfarm	3.4	3.9	1.1	1.0	.7	.6	1.0	.9	1.0	1.0
Price data[1]										
Consumer Price Index (All Urban Consumers): All Items	3.3	1.7	1.4	.6	.7	.5	.9	.2	.6	.1
Producer Price Index:										
Finished goods	2.8	.4	.8	1.2	.1	.7	−.5	−.4	.2	−.1
Finished consumer goods	3.6	.5	1.0	1.6	.3	.6	−.6	−.2	.4	−.8
Capital equipment	.4	.0	.1	−.1	−.7	1.0	.1	−.5	−.7	.6
Intermediate materials, supplies, and components	.7	−.1	−.2	1.0	.4	−.6	−.3	.1	.2	−.8
Crude materials	14.7	−2.5	3.8	3.0	−.4	7.7	−11.5	−.4	1.3	−1.0
Productivity data[3]										
Output per hour of all persons:										
Business sector	2.0	1.9	3.1	3.1	−.7	2.0	1.6	2.2	3.5	2.2
Nonfarm business sector	1.9	1.7	2.8	2.9	−.7	1.9	1.1	2.3	3.6	2.0
Nonfinancial corporations[4]	3.1	–	2.4	4.1	2.7	2.1	1.7	2.4	6.3	–

[1] Annual changes are December-to-December changes. Quarterly changes are calculated using the last month of each quarter. Compensation and price data are not seasonally adjusted, and the price data are not compounded.

[2] Excludes Federal and private household workers.

[3] Annual rates of change are computed by comparing annual averages. Quarterly percent changes reflect annual rates of change in quarterly indexes. The data are seasonally adjusted.

[4] Output per hour of all employees.

3. Alternative measures of wage and compensation changes

Components	Quarterly average						Four quarters ending—					
	1996		1997				1996		1997			
	III	IV	I	II	III	IV	III	IV	I	II	III	IV
Average hourly compensation:[1]												
All persons, business sector	3.6	3.4	4.1	3.1	4.2	5.5	4.2	4.0	4.1	3.6	3.7	4.2
All persons, nonfarm business sector	3.3	3.4	4.3	3.2	3.8	5.2	4.0	3.9	4.0	3.5	3.7	4.1
Employment Cost Index—compensation:												
Civilian nonfarm[2]	.8	.5	.8	.6	1.0	.8	2.8	2.9	2.9	2.8	3.0	3.3
Private nonfarm	.6	.6	.8	.8	.8	.9	2.9	3.1	3.0	2.9	3.2	3.4
Union	.3	.5	.2	.6	1.1	.2	2.6	2.4	1.9	1.6	2.4	2.1
Nonunion	.8	.5	1.1	.8	.8	1.0	2.9	3.1	3.2	3.2	3.2	3.8
State and local governments	1.3	.6	.4	.1	1.3	.5	2.5	2.6	2.5	2.4	2.4	2.3
Employment Cost Index—wages and salaries:												
Civilian nonfarm[2]	.9	.6	.9	.7	1.2	.9	3.2	3.3	3.3	3.2	3.5	3.8
Private nonfarm	.7	.6	1.0	.9	1.0	1.0	3.3	3.4	3.4	3.3	3.6	3.9
Union	.5	.5	.5	.7	1.1	.5	2.7	2.6	2.6	2.2	2.8	2.8
Nonunion	.8	.6	1.1	.9	1.0	1.1	3.5	3.6	3.4	3.5	3.7	4.2
State and local governments	1.6	.6	.4	.1	1.6	.6	2.8	2.8	2.8	2.7	2.7	2.7

[1] Seasonally adjusted. "Quarterly average" is percent change from a quarter ago, at an annual rate.

[2] Excludes Federal and household workers.

4. Employment status of the population, by sex, age, race, and Hispanic origin, monthly data seasonally adjusted

[Numbers in thousands]

Employment status	Annual average		1997												1998
	1996	1997	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.
TOTAL															
Civilian noninstitutional population[1]	200,591	203,133	202,285	202,388	202,513	202,674	202,832	203,000	203,166	203,364	203,570	203,767	203,941	204,098	204,238
Civilian labor force	133,943	136,297	135,729	135,689	136,115	136,043	136,060	136,206	136,294	136,404	136,439	136,406	136,864	137,169	137,493
Participation rate	66.8	67.1	67.1	67.0	67.2	67.1	67.1	67.1	67.1	67.1	67.0	66.9	67.1	67.2	67.3
Employed	126,708	129,558	128,541	128,515	129,035	129,275	129,494	129,392	129,661	129,747	129,761	129,910	130,575	130,777	131,083
Employment-population ratio[2]	63.2	63.8	63.5	63.5	63.7	63.8	63.8	63.7	63.8	63.8	63.7	63.8	64.0	64.1	64.2
Unemployed	7,236	6,739	7,188	7,174	7,080	6,768	6,566	6,814	6,633	6,657	6,678	6,496	6,289	6,392	6,409
Unemployment rate	5.4	4.9	5.3	5.3	5.2	5.0	4.8	5.0	4.9	4.9	4.9	4.8	4.6	4.7	4.7
Not in the labor force	66,647	66,837	66,556	66,700	66,398	66,631	66,772	66,794	66,872	66,960	67,131	67,361	67,077	66,929	66,745
Men, 20 years and over															
Civilian noninstitutional population[1]	88,606	89,879	89,446	89,556	89,604	89,680	89,776	89,829	89,888	89,982	90,068	90,140	90,251	90,339	90,391
Civilian labor force	68,044	69,166	68,949	68,872	69,040	69,107	68,990	69,157	69,171	69,198	69,136	69,193	69,500	69,561	69,652
Participation rate	76.8	77.0	77.1	76.9	77.1	77.1	76.9	77.0	77.0	76.9	76.8	76.8	77.0	77.0	77.1
Employed	64,897	66,284	65,856	65,860	66,031	66,198	66,309	66,258	66,361	66,386	66,298	66,337	66,824	66,676	67,008
Employment-population ratio[2]	73.2	73.7	73.6	73.5	73.7	73.8	73.9	73.8	73.8	73.8	73.6	73.6	74.0	73.8	74.1
Agriculture	2,356	2,356	2,369	2,313	2,357	2,411	2,402	2,398	2,390	2,311	2,383	2,298	2,323	2,314	2,282
Nonagricultural industries	62,541	63,927	63,487	63,547	63,674	63,787	63,907	63,860	63,971	64,075	63,915	64,039	64,501	64,362	64,726
Unemployed	3,146	2,882	3,093	3,012	3,009	2,909	2,681	2,899	2,810	2,812	2,838	2,856	2,676	2,885	2,644
Unemployment rate	4.6	4.2	4.5	4.4	4.4	4.2	3.9	4.2	4.1	4.1	4.1	4.1	3.9	4.1	3.8
Women, 20 years and over															
Civilian noninstitutional population[1]	97,050	97,889	97,520	97,571	97,638	97,685	97,767	97,834	97,919	98,000	98,082	98,144	98,212	98,300	98,420
Civilian labor force	58,094	59,198	58,832	58,791	59,070	58,975	59,129	59,195	59,232	59,362	59,432	59,338	59,348	59,624	59,652
Participation rate	59.9	60.5	60.3	60.3	60.5	60.4	60.5	60.5	60.5	60.6	60.6	60.5	60.4	60.7	60.6
Employed	55,311	56,613	56,078	56,021	56,322	56,357	56,488	56,575	56,693	56,789	56,883	56,919	56,953	57,255	57,040
Employment-population ratio[2]	57.0	57.8	57.5	57.4	57.7	57.7	57.8	57.8	57.9	57.9	58.0	58.0	58.0	58.2	58.0
Agriculture	827	798	787	774	752	775	760	755	831	824	826	814	833	845	811
Nonagricultural industries	54,484	55,815	55,291	55,247	55,570	55,582	55,728	55,820	55,862	55,965	56,057	56,105	56,120	56,410	56,229
Unemployed	2,783	2,585	2,754	2,770	2,748	2,618	2,641	2,620	2,539	2,573	2,549	2,419	2,395	2,369	2,612
Unemployment rate	4.8	4.4	4.7	4.7	4.7	4.4	4.5	4.4	4.3	4.3	4.3	4.1	4.0	4.0	4.4
Both sexes, 16 to 19 years															
Civilian noninstitutional population[1]	14,934	15,365	15,318	15,261	15,271	15,309	15,300	15,336	15,359	15,382	15,420	15,483	15,478	15,459	15,427
Civilian labor force	7,806	7,932	7,948	8,026	8,005	7,961	7,941	7,854	7,891	7,844	7,871	7,875	8,016	7,984	8,189
Participation rate	52.3	51.6	51.9	52.6	52.4	52.0	51.9	51.2	51.4	51.0	51.0	50.9	51.8	51.6	53.1
Employed	6,500	6,661	6,607	6,634	6,682	6,720	6,697	6,559	6,607	6,572	6,580	6,654	6,798	6,846	7,035
Employment-population ratio[2]	43.5	43.4	43.1	43.5	43.8	43.9	43.8	42.8	43.0	42.7	42.7	43.0	43.9	44.3	45.6
Agriculture	261	244	297	253	278	276	256	236	231	244	213	215	228	226	227
Nonagricultural industries	6,239	6,417	6,310	6,381	6,404	6,444	6,441	6,323	6,376	6,328	6,367	6,439	6,570	6,620	6,809
Unemployed	1,306	1,271	1,341	1,392	1,323	1,241	1,244	1,295	1,284	1,272	1,291	1,221	1,218	1,138	1,154
Unemployment rate	16.7	16.0	16.9	17.3	16.5	15.6	15.7	16.5	16.3	16.2	16.4	15.5	15.2	14.3	14.1
White															
Civilian noninstitutional population[1]	168,317	169,993	169,436	169,492	169,569	169,675	169,782	169,897	170,010	170,148	170,290	170,427	170,545	170,649	170,810
Civilian labor force	113,108	114,693	114,311	114,326	114,597	114,567	114,562	114,659	114,622	114,669	114,758	114,784	115,073	115,263	115,253
Participation rate	67.2	67.5	67.5	67.5	67.6	67.5	67.5	67.5	67.4	67.4	67.4	67.4	67.5	67.5	67.5
Employed	107,808	109,856	109,154	109,211	109,528	109,721	109,906	109,779	109,851	109,832	109,904	110,063	110,604	110,729	110,689
Employment-population ratio[2]	64.1	64.6	64.4	64.4	64.6	64.7	64.7	64.6	64.6	64.6	64.5	64.6	64.9	64.9	64.8
Unemployed	5,300	4,836	5,157	5,115	5,069	4,846	4,656	4,880	4,771	4,837	4,854	4,721	4,469	4,534	4,555
Unemployment rate	4.7	4.2	4.5	4.5	4.4	4.2	4.1	4.3	4.2	4.2	4.2	4.1	3.9	3.9	4.0
Black															
Civilian noninstitutional population[1]	23,604	24,003	23,847	23,872	23,895	23,923	23,950	23,978	24,006	24,043	24,081	24,117	24,149	24,180	24,196
Civilian labor force	15,134	15,529	15,380	15,420	15,438	15,389	15,424	15,426	15,524	15,728	15,691	15,555	15,638	15,709	15,788
Participation rate	64.1	64.7	64.5	64.6	64.6	64.3	64.4	64.3	64.7	65.4	65.2	64.5	64.8	65.0	65.3
Employed	13,542	13,969	13,736	13,722	13,816	13,864	13,837	13,836	14,040	14,237	14,180	14,067	14,128	14,149	14,316
Employment-population ratio[2]	57.4	58.2	57.6	57.5	57.8	58.0	57.8	57.7	58.5	59.2	28.9	58.3	58.5	58.5	59.2
Unemployed	1,592	1,560	1,644	1,698	1,622	1,525	1,587	1,590	1,484	1,491	1,511	1,488	1,510	1,560	1,472
Unemployment rate	10.5	10.0	10.7	11.0	10.5	9.9	10.3	10.3	9.6	9.5	9.6	9.6	9.7	9.9	9.3

See footnotes at end of table.

4. Continued—Employment status of the population, by sex, age, race, and Hispanic origin, monthly data seasonally adjusted

[Numbers in thousands]

Employment status	Annual average		1997												1998
	1996	1997	Jan.	Feb.	Mar	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.
Hispanic origin															
Civilian noninstitutional population[1]	19,213	20,321	20,013	20,067	20,119	20,180	20,236	20,293	20,351	20,407	20,464	20,519	20,575	20,629	20,741
Civilian labor force	12,774	13,796	13,669	13,634	13,666	13,601	13,760	13,814	13,861	13,886	13,861	13,896	13,880	13,973	13,954
Participation rate	66.5	67.9	68.3	67.9	67.9	67.4	68.0	68.1	68.1	68.0	67.7	67.7	67.5	67.7	67.3
Employed	11,642	12,726	12,554	12,529	12,533	12,514	12,713	12,751	12,772	12,867	12,807	12,806	12,921	12,921	12,988
Employment-population ratio[2]	60.6	62.6	62.7	62.4	62.3	62.0	62.8	62.8	62.8	63.1	62.6	62.4	62.8	62.6	62.6
Unemployed	1,132	1,069	1,115	1,105	1,133	1,087	1,047	1,063	1,089	1,019	1,054	1,090	959	1,052	966
Unemployment rate	8.9	7.7	8.2	8.1	8.3	8.0	7.6	7.7	7.9	7.3	7.6	7.8	6.9	7.5	6.9

[1] The population figures are not seasonally adjusted.

[2] Civilian employment as a percent of the civilian noninstitutional population.

NOTE: Detail for the above race and Hispanic-origin groups will not sum to totals because data for the "other races" groups are not presented and Hispanics are included in both the white and black population groups.

5. Selected employment indicators, monthly data seasonally adjusted

[In thousands]

Selected categories	Annual average		1997												1998
	1996	1997	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.
Characteristic															
Employed, 16 years and over	126,708	129,558	128,541	128,515	129,035	129,275	129,494	129,392	129,661	129,747	129,761	129,910	130,575	130,777	131,083
Men	68,207	69,685	69,209	69,248	69,415	69,565	69,765	69,586	69,711	69,748	69,656	69,785	70,352	70,195	70,518
Women	58,501	59,873	59,332	59,267	59,620	59,710	59,729	59,806	59,950	59,999	60,105	60,125	60,223	60,582	60,565
Married men, spouse present	42,417	42,642	42,815	42,489	42,502	42,426	42,357	42,476	42,582	42,680	42,648	42,771	42,967	42,952	42,977
Married women, spouse present	32,406	32,755	32,717	32,597	32,690	32,549	32,520	32,654	32,813	32,861	32,846	32,978	32,840	32,975	32,793
Women who maintain families	7,363	7,775	7,536	7,585	7,696	7,790	7,820	7,820	7,875	7,892	7,876	7,865	7,726	7,822	7,784
Class of worker															
Agriculture:															
Wage and salary workers	1,869	1,890	1,955	1,912	1,901	1,952	1,917	1,912	1,897	1,853	1,889	1,815	1,855	1,844	1,949
Self-employed workers	1,518	1,457	1,444	1,373	1,433	1,438	1,442	1,429	1,478	1,477	1,495	1,475	1,493	1,496	1,348
Unpaid family workers	56	51	60	18	59	62	52	47	52	50	44	55	49	54	44
Nonagricultural industries:															
Wage and salary workers	114,171	116,983	115,431	115,949	116,413	116,515	116,874	116,642	117,146	117,372	117,303	117,635	118,083	118,403	118,529
Government	18,217	18,131	18,247	18,144	18,067	18,048	17,863	18,113	18,303	18,203	18,109	18,075	18,170	18,248	18,421
Private industries	95,954	98,852	97,184	97,805	98,346	98,467	99,011	98,529	98,843	99,169	99,194	99,560	99,913	100,155	100,108
Private households	928	915	1,002	894	882	923	948	888	911	935	877	877	910	946	985
Other	95,025	97,937	96,199	96,911	97,464	97,544	98,063	97,641	97,932	98,234	98,317	98,683	99,003	99,209	99,123
Self-employed workers	8,971	9,056	9,399	9,112	9,219	9,124	9,098	9,089	8,927	8,955	8,949	8,930	9,004	8,886	8,964
Unpaid family workers	122	120	168	136	109	133	142	128	129	126	83	92	97	99	131
Persons at work part time[1]															
All industries:															
Part time for economic reasons	4,315	4,068	4,319	4,250	4,162	4,360	4,060	4,049	4,019	3,988	3,928	3,913	3,890	3,855	4,082
Slack work or business conditions	2,388	2,286	2,391	2,365	2,340	2,402	2,295	2,347	2,236	2,164	2,187	2,211	2,221	2,230	2,282
Could only find part-time work	1,605	1,468	1,564	1,550	1,519	1,625	1,440	1,373	1,489	1,487	1,455	1,406	1,386	1,323	1,400
Part time for noneconomic reasons	17,770	18,149	18,210	18,061	18,144	18,155	18,218	18,205	18,055	18,096	17,901	18,113	18,083	18,386	18,515
Nonagricultural industries:															
Part time for economic reasons	4,123	3,879	4,099	4,075	3,957	4,204	3,853	3,819	3,858	3,832	3,739	3,732	3,689	3,654	3,865
Slack work or business conditions	2,263	2,167	2,273	2,259	2,210	2,279	2,166	2,202	2,121	2,066	2,067	2,103	2,100	2,113	2,162
Could only find part-time work	1,576	1,433	1,527	1,521	1,484	1,599	1,402	1,320	1,462	1,455	1,417	1,378	1,346	1,291	1,373
Part time for noneconomic reasons	17,150	17,564	17,575	17,461	17,559	17,588	17,654	17,577	17,452	17,521	17,381	17,537	17,486	17,791	17,898

[1] Excludes persons "with a job but not at work" during the survey period for such reasons as vacation, illness, or industrial disputes.

6. Selected unemployment indicators, monthly data seasonally adjusted

[Unemployment rates]

Selected categories	Annual average		1997												1998
	1996	1997	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.
Characteristic															
Total, all workers	5.4	4.9	5.3	5.3	5.2	5.0	4.8	5.0	4.9	4.9	4.9	4.8	4.6	4.7	4.7
Both sexes, 16 to 19 years	16.7	16.0	16.9	17.3	16.5	15.6	15.7	16.5	16.3	16.2	16.4	15.5	15.2	14.3	14.1
Men, 20 years and over	4.6	4.2	4.5	4.4	4.4	4.2	3.9	4.2	4.1	4.1	4.1	4.1	3.9	4.1	3.8
Women, 20 years and over	4.8	4.4	4.7	4.7	4.7	4.4	4.5	4.4	4.3	4.3	4.3	4.1	4.0	4.0	4.4
White, total	4.7	4.2	4.5	4.5	4.4	4.2	4.1	4.3	4.2	4.2	4.2	4.1	3.9	3.9	4.0
Both sexes, 16 to 19 years	14.2	13.6	14.1	14.6	14.1	13.5	12.9	14.4	14.4	14.2	14.1	13.4	12.3	11.2	11.6
Men, 16 to 19 years	15.5	14.3	15.1	14.8	15.1	14.6	13.0	15.8	15.0	15.1	14.4	14.3	12.8	11.3	14.2
Women, 16 to 19 years	12.9	12.8	13.1	14.4	13.0	12.2	12.7	12.8	13.7	13.1	13.7	12.3	11.6	11.1	8.8
Men, 20 years and over	4.1	3.6	3.9	3.8	3.8	3.6	3.3	3.6	3.5	3.6	3.6	3.6	3.4	3.6	3.3
Women, 20 years and over	4.1	3.7	3.9	3.9	3.9	3.7	3.7	3.7	3.5	3.7	3.7	3.5	3.4	3.4	3.7
Black, total	10.5	10.0	10.7	11.0	10.5	9.9	10.3	10.3	9.6	9.5	9.6	9.6	9.7	9.9	9.3
Both sexes, 16 to 19 years	33.6	32.4	34.1	33.6	32.1	31.9	33.9	32.2	30.0	30.4	32.7	29.5	33.3	34.4	30.1
Men, 16 to 19 years	36.9	36.5	40.9	36.8	40.5	37.7	34.5	39.1	34.6	33.9	37.6	30.1	35.0	36.2	31.8
Women, 16 to 19 years	30.3	28.7	27.7	30.4	34.6	26.3	33.3	25.5	25.9	27.2	28.6	28.8	31.9	33.1	28.5
Men, 20 years and over	9.4	8.5	9.0	8.8	8.9	8.4	8.4	9.0	8.3	7.9	7.9	8.3	7.8	8.6	7.9
Women, 20 years and over	8.7	8.8	9.3	10.0	9.2	8.6	9.2	9.0	8.4	8.4	8.4	8.3	8.4	8.1	8.0
Hispanic origin, total	8.9	7.7	8.2	8.1	8.3	8.0	7.6	7.7	7.9	7.3	7.6	7.8	6.9	7.5	6.9
Married men, spouse present	3.0	2.7	2.8	2.8	2.8	2.7	2.7	2.7	2.6	2.6	2.6	2.6	2.4	2.6	2.6
Married women, spouse present	3.6	3.1	3.3	3.4	3.3	3.2	3.2	3.2	3.1	3.0	3.1	2.8	2.8	2.8	3.1
Women who maintain families	8.2	8.1	8.7	8.8	8.7	7.9	7.9	8.0	7.6	8.0	7.8	7.8	8.1	7.7	7.6
Full-time workers	5.3	4.8	5.2	5.1	5.1	4.8	4.8	4.9	4.8	4.7	4.7	4.7	4.4	4.6	4.5
Part-time workers	5.8	5.5	5.7	5.9	5.7	5.6	5.3	5.3	5.4	5.5	5.5	5.3	5.4	5.0	5.4
Industry															
Nonagricultural wage and salary workers	5.5	5.0	5.4	5.3	5.2	5.0	5.0	5.0	4.9	5.0	5.0	4.8	4.7	4.8	4.7
Mining	5.1	3.8	5.3	4.0	3.9	2.3	3.3	2.8	4.1	4.9	3.4	4.5	3.3	3.3	4.0
Construction	10.1	9.0	9.8	9.1	9.4	8.8	8.6	8.8	8.7	9.0	8.7	8.7	7.9	8.9	7.9
Manufacturing	4.8	4.2	4.6	4.5	4.3	4.4	4.3	4.2	4.3	4.1	4.1	3.8	3.6	3.8	3.9
Durable goods	4.5	3.5	4.3	4.0	3.7	3.6	3.6	3.6	3.5	3.5	3.3	3.1	3.1	3.1	3.4
Nondurable goods	5.2	5.1	5.0	5.3	5.3	5.5	5.3	5.0	5.4	5.0	5.3	4.8	4.4	4.9	4.5
Transportation and public utilities	4.1	3.5	4.0	4.1	3.9	2.9	3.6	3.0	3.4	3.7	3.8	3.3	3.1	3.3	3.8
Wholesale and retail trade	6.4	6.2	6.4	6.4	6.3	6.2	6.1	6.4	6.1	6.2	6.2	6.1	6.2	5.8	5.9
Finance, insurance, and real estate	2.7	3.0	3.4	3.1	3.2	3.3	3.1	2.5	3.1	3.0	3.0	2.9	2.4	2.8	2.6
Services	5.4	4.6	4.9	4.9	4.9	4.6	4.7	4.7	4.4	4.5	4.6	4.3	4.4	4.5	4.3
Government workers	2.9	2.6	2.9	2.9	2.8	2.4	2.5	2.8	2.7	2.6	2.6	2.4	2.3	2.1	2.4
Agricultural wage and salary workers	10.2	9.1	8.7	9.0	9.3	9.5	7.6	10.4	8.4	8.9	9.0	9.6	8.6	9.7	10.6
Educational attainment[1]															
Less than a high school diploma	8.7	8.1	8.9	8.8	8.4	8.2	8.2	8.2	7.8	7.7	8.0	7.7	7.5	7.6	7.2
High school graduates, no college	4.7	4.3	4.4	4.5	4.4	4.2	4.2	4.4	4.2	4.3	4.2	4.2	3.8	4.1	3.9
Some college, less than a bachelor's degree	3.7	3.3	3.5	3.5	3.6	3.3	3.0	3.2	3.2	3.2	3.2	2.9	3.1	3.2	3.2
College graduates	2.2	2.0	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.0	1.9	1.8	1.8	1.9

[1] Data refer to persons 25 years and over.

7. Duration of unemployment, monthly data seasonally adjusted

[Numbers in thousands]

Weeks of unemployment	Annual average		1997												1998
	1996	1997	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.
Less than 5 weeks	2,633	2,538	2,678	2,580	2,618	2,471	2,542	2,541	2,446	2,564	2,484	2,558	2,423	2,531	2,488
5 to 14 weeks	2,287	2,138	2,251	2,341	2,325	2,177	2,067	2,188	2,097	2,121	2,115	1,912	2,048	1,922	1,971
15 weeks and over	2,316	2,062	2,150	2,158	2,079	2,088	2,076	2,069	2,128	2,027	2,109	1,990	1,865	1,964	1,811
15 to 26 weeks	1,053	995	964	1,031	1,003	1,033	1,054	1,031	1,061	950	1,031	919	899	936	773
27 weeks and over	1,262	1,067	1,186	1,127	1,076	1,055	1,022	1,038	1,067	1,077	1,078	1,071	966	1,028	1,038
Mean duration, in weeks	16.7	15.8	15.9	15.9	15.4	15.4	15.3	15.3	16.5	15.8	15.9	16.3	15.6	16.3	15.6
Median duration, in weeks	8.3	8.0	7.9	8.2	7.9	8.1	7.8	7.9	8.2	7.9	8.1	7.7	7.8	7.7	7.4

8. Unemployed persons by reason for unemployment, monthly data seasonally adjusted

[Numbers in thousands]

Reason for unemployment	Annual average		1997												1998
	1996	1997	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.
Job losers[1]	3,370	3,037	3,191	3,147	3,148	3,038	2,961	3,094	2,954	3,010	3,007	2,934	2,886	2,991	2,807
On temporary layoff	1,021	931	953	949	993	958	909	928	894	891	893	963	815	961	860
Not on temporary layoff	2,349	2,106	2,238	2,198	2,155	2,080	2,052	2,166	2,060	2,119	2,114	1,971	2,071	2,030	1,947
Job leavers	774	795	861	804	797	776	808	827	812	894	853	732	655	692	808
Reentrants	2,512	2,338	2,499	2,608	2,497	2,422	2,338	2,333	2,263	2,173	2,263	2,247	2,229	2,170	2,229
New entrants	580	569	596	623	617	569	573	510	564	554	560	555	560	552	518
Percent of unemployed															
Job losers[1]	46.6	45.1	44.6	43.8	44.6	44.6	44.3	45.7	44.8	45.4	45.0	45.4	45.6	46.7	44.1
On temporary layoff	14.1	13.8	13.3	13.2	14.1	14.1	13.6	13.7	13.6	13.4	13.4	14.9	12.9	15.0	13.5
Not on temporary layoff	32.5	31.3	31.3	30.6	30.5	30.6	30.7	32.0	31.2	32.0	31.6	30.5	32.7	31.7	30.6
Job leavers	10.7	11.8	12.0	11.2	11.3	11.4	12.1	12.2	12.3	13.5	12.8	11.3	10.3	10.8	12.7
Reentrants	34.7	34.7	35.0	36.3	35.4	35.6	35.0	34.5	34.3	32.8	33.9	34.7	35.2	33.9	35.0
New entrants	8.0	8.4	8.3	8.7	8.7	8.4	8.6	7.5	8.6	8.4	8.4	8.6	8.8	8.6	8.1
Percent of civilian labor force															
Job losers[1]	2.5	2.2	2.4	2.3	2.3	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.1	2.2	2.0
Job leavers	.6	.6	.6	.6	.6	.6	.6	.6	.6	.7	.6	.5	.5	.5	.6
Reentrants	1.9	1.7	1.8	1.9	1.8	1.8	1.7	1.7	1.7	1.6	1.7	1.6	1.6	1.6	1.6
New entrants	.4	.4	.4	.5	.5	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4

[1] Includes persons who completed temporary jobs.

9. Unemployment rates by sex and age, monthly data seasonally adjusted

[Civilian workers]

Sex and age	Annual average		1997												1998
	1996	1997	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.
Total, 16 years and over	5.4	4.9	5.3	5.3	5.2	5.0	4.8	5.0	4.9	4.9	4.9	4.8	4.6	4.7	4.7
16 to 24 years	12.0	11.3	12.0	12.0	11.7	11.3	11.0	11.4	11.0	11.3	11.2	11.1	10.9	10.6	10.8
16 to 19 years	16.7	16.0	16.9	17.3	16.5	15.6	15.7	16.5	16.3	16.2	16.4	15.5	15.2	14.3	14.1
16 to 17 years	18.9	18.2	17.8	19.5	19.0	18.4	18.3	17.3	17.9	17.9	19.3	17.5	17.6	17.7	17.3
18 to 19 years	15.2	14.5	16.2	15.2	14.9	13.6	13.9	15.9	15.5	15.4	14.5	14.1	13.6	11.7	11.6
20 to 24 years	9.3	8.5	9.2	8.8	8.9	8.8	8.2	8.4	7.9	8.4	8.2	8.5	8.4	8.5	8.9
25 years and over	4.2	3.8	4.0	4.0	4.0	3.7	3.7	3.8	3.7	3.7	3.7	3.6	3.4	3.6	3.5
25 to 54 years	4.3	3.9	4.2	4.2	4.1	3.8	3.9	3.9	3.8	3.8	3.8	3.7	3.5	3.7	3.6
55 years and over	3.4	3.0	3.1	3.1	3.3	2.9	2.9	3.1	3.0	3.0	3.1	2.8	2.8	2.8	2.7
Men, 16 years and over	5.4	4.9	5.3	5.1	5.1	4.9	4.5	5.0	4.8	4.8	4.8	4.8	4.5	4.7	4.5
16 to 24 years	12.6	11.8	12.7	12.1	12.1	11.8	10.7	11.9	11.5	11.9	12.0	12.0	11.6	11.1	11.2
16 to 19 years	18.1	16.9	18.3	17.9	17.9	17.4	15.7	18.2	17.2	17.3	17.2	16.3	15.6	14.2	16.4
16 to 17 years	20.8	19.1	20.3	19.7	20.9	20.2	18.5	19.7	18.8	18.1	18.8	18.2	18.2	18.4	18.3
18 to 19 years	16.3	15.4	16.9	15.7	16.1	15.5	14.0	17.4	16.1	17.3	16.1	14.8	14.1	11.1	14.9
20 to 24 years	9.5	8.9	9.5	8.8	8.8	8.7	7.8	8.3	8.3	8.8	9.1	9.5	9.3	9.3	8.1
25 years and over	4.1	3.6	3.9	3.9	3.8	3.7	3.5	3.7	3.6	3.6	3.5	3.5	3.2	3.5	3.3
25 to 54 years	4.2	3.7	4.0	4.0	3.9	3.8	3.6	3.8	3.7	3.6	3.6	3.6	3.3	3.6	3.4
55 years and over	3.3	3.1	3.2	3.3	3.4	2.9	2.9	3.1	3.0	3.1	3.0	3.0	2.9	3.4	3.1
Women, 16 years and over	5.4	5.0	5.3	5.5	5.3	5.0	5.1	5.0	5.0	5.0	5.0	4.7	4.7	4.6	4.8
16 to 24 years	11.3	10.7	11.3	11.8	11.2	10.8	11.3	10.8	10.4	10.6	10.4	10.1	10.1	10.2	10.4
16 to 19 years	15.2	15.0	15.4	16.7	15.0	13.7	15.6	14.7	15.3	15.0	15.5	14.7	14.7	14.3	11.6
16 to 17 years	16.9	17.2	15.1	19.3	17.0	16.6	18.1	14.7	16.9	17.7	19.8	16.7	17.0	17.0	16.3
18 to 19 years	14.0	13.6	15.4	14.7	13.7	11.6	13.9	14.2	14.8	13.3	12.8	13.4	13.0	12.4	8.2
20 to 24 years	9.0	8.1	8.9	8.8	8.9	9.0	8.7	8.5	7.5	7.9	7.3	7.4	7.4	7.6	9.7
25 years and over	4.3	3.9	4.1	4.2	4.2	3.8	4.0	3.9	3.9	3.9	4.0	3.7	3.6	3.6	3.7
25 to 54 years	4.4	4.1	4.3	4.4	4.3	3.9	4.2	4.1	4.0	4.0	4.1	3.8	3.8	3.9	3.9
55 years and over	3.5	2.9	2.9	2.8	3.1	3.0	3.0	3.1	3.0	3.0	3.2	2.7	2.6	2.1	2.3

10. Unemployment rates by State, seasonally adjusted

State	Dec. 1996	Nov. 1997	Dec. 1997[P]	State	Dec. 1996	Nov. 1997	Dec. 1997[P]
Alabama	4.5	4.7	4.5	Missouri	4.8	3.9	4.0
Alaska	7.9	7.4	7.0	Montana	4.8	5.2	5.4
Arizona	5.4	4.3	4.2	Nebraska	2.8	1.9	1.6
Arkansas	5.4	4.7	5.0	Nevada	5.5	4.0	3.9
California	6.8	5.9	6.0	New Hampshire	3.9	3.1	2.7
Colorado	4.0	3.2	2.9	New Jersey	6.1	4.9	4.9
Connecticut	5.7	4.7	4.4	New Mexico	8.2	6.1	6.2
Delaware	5.3	3.0	3.4	New York	6.2	6.2	6.1
District of Columbia	8.4	7.9	8.1	North Carolina	4.2	3.5	3.6
Florida	4.9	4.7	4.7	North Dakota	3.2	1.9	2.0
Georgia	4.7	3.9	4.0	Ohio	5.0	4.5	4.5
Hawaii	6.5	5.7	5.9	Oklahoma	3.9	3.7	3.4
Idaho	5.6	4.8	5.2	Oregon	6.3	5.3	5.3
Illinois	5.2	4.8	4.8	Pennsylvania	4.8	4.8	4.8
Indiana	3.6	3.5	3.4	Rhode Island	5.0	4.8	4.7
Iowa	3.8	2.7	2.8	South Carolina	6.1	3.5	3.7
Kansas	4.6	3.7	3.7	South Dakota	3.3	2.8	2.8
Kentucky	5.8	4.7	4.6	Tennessee	5.1	5.1	5.0
Louisiana	6.6	6.1	5.7	Texas	5.3	5.0	4.8
Maine	4.7	4.8	5.1	Utah	3.4	2.9	2.8
Maryland	4.5	4.7	4.8	Vermont	4.6	3.6	3.8
Massachusetts	3.9	3.9	3.8	Virginia	4.2	3.6	3.3
Michigan	4.8	4.0	4.0	Washington	6.3	4.2	4.4
Minnesota	3.9	2.9	2.8	West Virginia	7.4	6.6	6.4
Mississippi	5.8	5.7	5.0	Wisconsin	3.5	3.4	3.4
				Wyoming	5.1	4.2	4.5

[P] = preliminary

11. Employment of workers on nonfarm payrolls by State, seasonally adjusted

[In thousands]

State	Dec. 1996	Nov. 1997	Dec. 1997[P]	State	Dec. 1996	Nov. 1997	Dec. 1997[P]
Alabama	1,836.5	1,854.4	1,857.2	Missouri	2,592.8	2,622.1	2,626.0
Alaska	263.0	266.8	266.2	Montana	360.6	366.6	368.7
Arizona	1,937.1	2,020.3	2,025.8	Nebraska	843.4	861.3	864.1
Arkansas	1,092.7	1,103.1	1,105.8	Nevada	869.9	910.5	911.8
California	12,944.5	13,268.8	13,309.4	New Hampshire	566.6	573.6	576.0
Colorado	1,921.5	1,958.9	1,968.2	New Jersey	3,668.7	3,733.4	3,746.8
Connecticut	1,596.5	1,628.3	1,632.8	New Mexico	700.6	711.1	712.8
Delaware	382.1	394.6	396.1	New York	7,963.4	8,072.8	8,086.0
District of Columbia	620.7	609.0	608.5	North Carolina	3,615.8	3,669.3	3,674.1
Florida	6,283.3	6,488.6	6,509.8	North Dakota	312.5	320.3	321.4
Georgia	3,571.0	3,681.3	3,703.5	Ohio	5,329.7	5,371.1	5,382.5
Hawaii	528.2	527.2	525.2	Oklahoma	1,376.6	1,408.8	1,410.2
Idaho	498.0	505.8	502.9	Oregon	1,501.6	1,537.8	1,550.2
Illinois	5,714.4	5,781.7	5,788.9	Pennsylvania	5,361.4	5,470.9	5,467.6
Indiana	2,825.7	2,856.0	2,862.4	Rhode Island	445.6	450.2	452.1
Iowa	1,392.1	1,412.6	1,416.0	South Carolina	1,684.1	1,723.6	1,731.5
Kansas	1,247.4	1,276.1	1,275.6	South Dakota	351.4	354.9	356.4
Kentucky	1,688.6	1,716.1	1,724.2	Tennessee	2,556.2	2,571.0	2,576.3
Louisiana	1,829.6	1,849.7	1,849.6	Texas	8,353.0	8,556.5	8,580.7
Maine	540.8	555.9	556.5	Utah	973.6	1,011.3	1,013.9
Maryland	2,223.1	2,263.2	2,266.4	Vermont	275.9	279.6	279.6
Massachusetts	3,075.9	3,149.6	3,158.6	Virginia	3,175.8	3,251.2	3,263.0
Michigan	4,376.2	4,429.2	4,449.1	Washington	2,448.3	2,530.7	2,536.7
Minnesota	2,453.7	2,503.3	2,510.9	West Virginia	701.5	712.4	711.7
Mississippi	1,096.5	1,108.4	1,106.5	Wisconsin	2,629.0	2,678.1	2,684.0
				Wyoming	221.7	222.1	222.0

[P] = preliminary

12. Employment of workers on nonfarm payrolls by industry, monthly data seasonally adjusted

[In thousands]

Industry	Annual average		1997												1998
	1996	1997[p]	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.[p]	Dec.[p]	Jan.
TOTAL	119,523	122,259	120,909	121,162	121,344	121,671	121,834	122,056	122,440	122,492	122,792	123,083	123,512	123,867	124,225
PRIVATE SECTOR	100,076	102,605	101,380	101,615	101,799	102,092	102,269	102,417	102,721	102,688	103,078	103,334	103,749	104,095	104,444
GOODS-PRODUCING	24,431	24,739	24,581	24,653	24,670	24,667	24,702	24,714	24,713	24,765	24,771	24,814	24,888	24,988	25,123
Mining	574	574	574	574	572	573	576	574	574	573	576	574	572	574	574
Metal mining	54	54	55	54	54	54	54	54	54	54	54	53	54	54	53
Oil and gas extraction	317	320	317	319	317	319	321	320	321	321	323	323	322	322	324
Nonmetallic minerals, except fuels	106	108	108	108	108	107	108	108	108	107	108	107	106	108	107
Construction	5,400	5,629	5,542	5,604	5,609	5,599	5,628	5,622	5,625	5,637	5,642	5,650	5,682	5,742	5,834
General building contractors	1,254	1,306	1,287	1,298	1,298	1,297	1,300	1,302	1,308	1,306	1,305	1,311	1,327	1,342	1,360
Heavy construction, except building	770	768	774	791	777	767	777	766	761	764	762	758	759	772	780
Special trades contractors	3,377	3,554	3,481	3,515	3,534	3,535	3,551	3,554	3,556	3,567	3,575	3,581	3,596	3,628	3,694
Manufacturing	18,457	18,537	18,465	18,475	18,489	18,495	18,498	18,518	18,514	18,555	18,553	18,590	18,634	18,672	18,715
Production workers	12,749	12,809	12,758	12,762	12,771	12,774	12,790	12,791	12,792	12,815	12,818	12,851	12,882	12,913	12,943
Durable goods	10,766	10,915	10,821	10,836	10,848	10,856	10,864	10,891	10,910	10,957	10,952	10,985	11,020	11,047	11,089
Production workers	7,370	7,489	7,417	7,427	7,437	7,440	7,454	7,466	7,482	7,525	7,518	7,545	7,570	7,592	7,622
Lumber and wood products	780	798	789	793	797	799	800	797	796	798	798	800	800	807	810
Furniture and fixtures	504	509	506	507	507	506	508	508	510	506	508	509	511	513	515
Stone, clay, and glass products	541	542	543	543	542	541	540	538	541	541	541	543	542	544	546
Primary metal industries	711	711	708	708	709	710	708	709	708	711	713	716	716	717	718
Fabricated metal products	1,448	1,472	1,460	1,462	1,463	1,468	1,468	1,470	1,468	1,475	1,477	1,482	1,485	1,488	1,496
Industrial machinery and equipment	2,112	2,155	2,126	2,132	2,136	2,142	2,146	2,152	2,155	2,165	2,168	2,176	2,184	2,186	2,193
Computer and office equipment	363	379	367	370	372	375	378	379	381	385	384	386	384	386	387
Electronic and other electrical equipment	1,651	1,656	1,645	1,645	1,645	1,643	1,644	1,651	1,658	1,661	1,663	1,666	1,673	1,678	1,686
Electronic components and accessories	610	629	610	612	614	618	622	628	632	637	639	644	647	651	655
Transportation equipment	1,781	1,830	1,802	1,804	1,810	1,804	1,809	1,824	1,826	1,855	1,840	1,849	1,868	1,867	1,873
Motor vehicles and equipment	963	972	966	964	969	957	960	967	965	985	973	977	995	987	991
Aircraft and parts	460	505	483	487	491	495	498	505	510	514	515	518	521	525	527
Instruments and related products	854	857	854	854	853	855	854	856	859	858	858	859	860	862	864
Miscellaneous manufacturing industries	387	386	388	388	386	388	387	386	389	387	386	385	381	385	388
Nondurable goods	7,691	7,622	7,644	7,639	7,641	7,639	7,634	7,627	7,604	7,598	7,601	7,605	7,614	7,625	7,626
Production workers	5,379	5,320	5,341	5,335	5,334	5,334	5,336	5,325	5,310	5,290	5,300	5,306	5,312	5,321	5,321
Food and kindred products	1,693	1,693	1,695	1,694	1,698	1,699	1,693	1,692	1,684	1,679	1,688	1,690	1,701	1,705	1,707
Tobacco products	41	41	41	42	42	41	41	41	41	40	40	41	42	40	39
Textile mill products	624	608	615	612	612	609	609	607	608	604	605	604	602	604	601
Apparel and other textile products	864	813	835	831	827	822	818	816	810	810	803	800	796	795	790
Paper and allied products	681	676	678	678	677	677	677	675	675	675	675	675	676	677	678
Printing and publishing	1,538	1,544	1,534	1,534	1,535	1,541	1,546	1,550	1,549	1,547	1,547	1,548	1,551	1,554	1,556
Chemicals and allied products	1,032	1,027	1,028	1,028	1,028	1,029	1,030	1,027	1,023	1,024	1,026	1,028	1,028	1,028	1,028
Petroleum and coal products	142	138	139	139	140	140	139	138	138	138	138	137	137	138	138
Rubber and miscellaneous plastics products	981	990	985	987	988	988	988	989	986	991	990	993	992	996	1,002
Leather and leather products	96	91	94	94	94	93	93	92	90	90	89	89	89	88	87
SERVICE-PRODUCING	95,092	97,520	96,328	96,509	96,674	97,004	97,132	97,342	97,727	97,727	98,021	98,269	98,624	98,879	99,102
Transportation and public utilities	6,261	6,425	6,351	6,376	6,405	6,421	6,431	6,434	6,443	6,289	6,473	6,497	6,495	6,470	6,519
Transportation	4,038	4,182	4,121	4,142	4,164	4,179	4,187	4,193	4,202	4,049	4,232	4,247	4,243	4,213	4,253
Railroad transportation	231	228	228	227	226	225	226	230	229	225	227	226	229	230	233
Local and interurban passenger transit	439	458	452	453	455	460	458	457	461	464	457	458	459	461	463
Trucking and warehousing	1,641	1,688	1,656	1,664	1,671	1,676	1,687	1,686	1,692	1,703	1,708	1,710	1,702	1,697	1,707
Water transportation	173	177	175	175	175	177	176	178	176	179	176	178	177	175	172
Transportation by air	1,122	1,183	1,168	1,178	1,191	1,192	1,192	1,192	1,193	1,025	1,211	1,221	1,222	1,196	1,223
Pipelines, except natural gas	15	14	14	14	14	14	14	14	14	14	14	14	14	14	14
Transportation services	417	436	428	431	432	435	434	436	437	439	439	440	440	440	441
Communications and public utilities	2,223	2,243	2,230	2,234	2,241	2,242	2,244	2,241	2,241	2,240	2,241	2,250	2,252	2,257	2,266
Communications	1,338	1,374	1,354	1,358	1,364	1,369	1,372	1,372	1,372	1,376	1,376	1,385	1,390	1,395	1,405
Electric, gas, and sanitary services	885	869	876	876	877	873	872	869	869	864	865	865	862	862	861
Wholesale trade	6,483	6,657	6,570	6,593	6,611	6,622	6,630	6,634	6,664	6,675	6,687	6,712	6,729	6,746	6,776
Retail trade	21,625	22,136	21,917	21,922	21,945	22,029	22,026	22,079	22,159	22,189	22,215	22,258	22,403	22,472	22,496
Building materials and garden supplies	892	927	914	918	922	931	932	928	930	929	926	926	934	936	945
General merchandise stores	2,726	2,807	2,757	2,752	2,783	2,799	2,787	2,798	2,803	2,822	2,818	2,824	2,868	2,884	2,897
Department stores	2,388	2,462	2,420	2,416	2,452	2,446	2,452	2,450	2,458	2,470	2,469	2,474	2,522	2,530	2,561

See footnotes at end of table.

12. Continued—Employment of workers on nonfarm payrolls by industry, monthly data seasonally adjusted

[In thousands]

Industry	Annual average		1997								
	1996	1997[P]	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Food stores	3,435	3,497	3,474	3,477	3,478	3,480	3,482	3,487	3,502	3,505	3,507
Automotive dealers and service stations	2,270	2,323	2,307	2,311	2,315	2,319	2,316	2,315	2,318	2,325	2,331
New and used car dealers	1,032	1,056	1,051	1,053	1,055	1,055	1,054	1,056	1,055	1,057	1,057
Apparel and accessory stores	1,101	1,103	1,107	1,103	1,104	1,105	1,099	1,097	1,096	1,102	1,102
Furniture and home furnishings stores	985	1,041	1,020	1,022	1,025	1,026	1,032	1,034	1,042	1,044	1,049
Eating and drinking places	7,499	7,605	7,552	7,556	7,525	7,571	7,572	7,595	7,639	7,618	7,626
Miscellaneous retail establishments	2,717	2,836	2,786	2,783	2,793	2,798	2,806	2,825	2,829	2,844	2,856
Finance, insurance, and real estate	6,899	7,053	6,971	6,980	6,992	7,019	7,029	7,034	7,058	7,068	7,082
Finance	3,301	3,405	3,351	3,355	3,366	3,381	3,389	3,394	3,405	3,414	3,427
Depository institutions	2,024	2,046	2,032	2,034	2,037	2,041	2,043	2,044	2,048	2,048	2,048
Commercial banks	1,466	1,489	1,478	1,479	1,482	1,486	1,488	1,487	1,490	1,491	1,491
Savings institutions	263	253	255	255	254	253	253	254	253	252	251
Nondepository institutions	516	546	533	530	534	539	542	543	545	549	554
Security and commodity brokers	551	591	572	576	579	583	586	586	592	595	600
Holding and other investment offices	210	222	214	215	216	218	218	221	220	222	225
Insurance	2,217	2,230	2,218	2,219	2,217	2,221	2,222	2,226	2,230	2,232	2,232
Insurance carriers	1,510	1,510	1,505	1,503	1,500	1,502	1,503	1,506	1,509	1,510	1,511
Insurance agents, brokers, and service	707	720	713	716	717	719	719	720	721	722	721
Real estate	1,381	1,418	1,402	1,406	1,409	1,417	1,418	1,414	1,423	1,422	1,423
Services[1]	34,377	35,595	34,990	35,091	35,176	35,334	35,451	35,522	35,684	35,702	35,850
Agricultural services	625	669	647	649	648	664	669	668	673	675	680
Hotels and other lodging places	1,716	1,752	1,743	1,746	1,746	1,756	1,752	1,744	1,747	1,747	1,756
Personal services	1,184	1,190	1,195	1,197	1,196	1,193	1,189	1,182	1,182	1,185	1,187
Business services	7,254	7,666	7,476	7,521	7,577	7,594	7,618	7,645	7,682	7,657	7,732
Services to buildings	897	900	893	897	896	902	903	903	901	894	902
Personnel supply services	2,646	2,766	2,743	2,758	2,787	2,752	2,744	2,748	2,767	2,732	2,762
Help supply services	2,341	2,431	2,427	2,432	2,457	2,419	2,409	2,407	2,425	2,395	2,423
Computer and data processing services	1,208	1,342	1,268	1,278	1,291	1,306	1,322	1,337	1,347	1,360	1,375
Auto repair services and parking	1,084	1,137	1,117	1,123	1,126	1,132	1,136	1,131	1,137	1,139	1,145
Miscellaneous repair services	375	385	380	379	380	382	384	386	387	388	388
Motion pictures	522	542	530	532	529	528	532	537	539	550	549
Amusement and recreation services	1,466	1,548	1,490	1,495	1,494	1,503	1,542	1,561	1,576	1,563	1,568
Health services	9,469	9,687	9,586	9,600	9,612	9,644	9,673	9,673	9,697	9,712	9,731
Offices and clinics of medical doctors	1,679	1,743	1,713	1,720	1,721	1,728	1,740	1,740	1,745	1,745	1,754
Nursing and personal care facilities	1,732	1,761	1,750	1,751	1,753	1,760	1,764	1,761	1,762	1,765	1,764
Hospitals	3,814	3,876	3,841	3,846	3,852	3,857	3,864	3,869	3,877	3,884	3,892
Home health care services	665	682	677	676	678	684	682	682	685	685	684
Legal services	930	956	942	943	946	951	952	953	957	957	962
Educational services	2,020	2,081	2,042	2,046	2,047	2,062	2,062	2,074	2,089	2,094	2,105
Social services	2,403	2,478	2,432	2,438	2,445	2,458	2,466	2,474	2,494	2,497	2,502
Child day care services	569	589	578	579	580	581	587	590	594	600	597
Residential care	672	700	684	686	690	694	695	698	702	703	707
Museums and botanical and zoological gardens	85	88	87	87	87	87	88	88	88	88	88
Membership organizations	2,185	2,200	2,192	2,192	2,193	2,199	2,201	2,202	2,209	2,206	2,202
Engineering and management services	2,846	3,001	2,916	2,927	2,934	2,965	2,971	2,988	3,010	3,027	3,038
Engineering and architectural services	839	878	857	862	866	869	869	877	878	881	886
Management and public relations	873	952	913	919	923	936	941	950	959	968	969
Government	19,447	19,654	19,529	19,547	19,545	19,579	19,565	19,639	19,719	19,804	19,714
Federal	2,757	2,700	2,723	2,716	2,709	2,708	2,703	2,694	2,689	2,690	2,680
Federal, except Postal Service	1,901	1,842	1,862	1,861	1,856	1,856	1,851	1,843	1,839	1,830	1,824
State	4,624	4,648	4,621	4,624	4,622	4,635	4,636	4,640	4,671	4,664	4,662
Education	1,924	1,951	1,928	1,931	1,929	1,938	1,943	1,950	1,972	1,961	1,962
Other State government	2,700	2,697	2,693	2,693	2,693	2,697	2,693	2,690	2,699	2,703	2,700
Local	12,066	12,307	12,185	12,207	12,214	12,236	12,226	12,305	12,359	12,450	12,372
Education	6,748	6,912	6,831	6,849	6,853	6,858	6,850	6,902	6,954	7,030	6,957
Other local government	5,318	5,395	5,354	5,358	5,361	5,378	5,376	5,403	5,405	5,420	5,415

[1] Includes other industries not shown separately.

[P] = preliminary.

NOTE: See "Notes on the data" for a description of the most recent benchmark revision.

13. Average weekly hours of production or nonsupervisory workers on private nonfarm payrolls, by industry, monthly data seasonally adjusted

Industry	Annual average		1997												1998
	1996	1997[p]	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.[p]	Jan.[p]
PRIVATE SECTOR	34.4	34.6	34.4	34.8	34.8	34.5	34.5	34.6	34.4	34.6	34.5	34.5	34.8	34.6	34.8
GOODS-PRODUCING	41.1	41.3	41.1	41.2	41.4	41.4	41.4	41.1	41.2	41.1	41.2	41.3	41.2	41.4	41.5
MINING	45.3	45.4	44.7	45.8	45.9	45.3	46.0	45.4	45.4	45.5	45.1	45.2	45.6	44.8	45.4
MANUFACTURING	41.6	42.0	41.8	41.9	42.1	42.1	42.0	41.8	41.8	41.8	41.9	42.0	42.1	42.2	42.1
Overtime hours	4.4	4.8	4.7	4.7	4.9	4.9	4.8	4.6	4.7	4.7	4.7	4.8	4.9	4.9	4.9
Durable goods	42.4	42.8	42.5	42.7	42.9	43.0	42.8	42.6	42.6	42.7	42.6	42.8	42.9	43.0	42.8
Overtime hours	4.7	5.1	5.0	5.0	5.2	5.3	5.2	5.0	5.0	5.0	5.0	5.1	5.2	5.2	5.2
Lumber and wood products	40.8	41.0	40.7	40.8	41.0	41.2	41.0	41.0	41.1	40.8	40.9	41.1	41.4	41.0	41.2
Furniture and fixtures	39.4	40.2	39.8	39.9	40.3	40.1	40.4	39.9	40.0	40.0	40.2	40.0	40.5	40.7	41.5
Stone, clay, and glass products	43.3	43.2	42.6	43.3	43.1	43.0	43.4	42.9	43.1	43.0	43.1	43.1	42.9	43.7	43.9
Primary metal industries	44.2	44.9	44.4	44.6	44.8	45.1	44.8	44.7	44.4	45.0	44.9	45.1	45.3	45.3	45.3
Blast furnaces and basic steel products	44.5	44.9	44.7	44.6	44.8	45.2	44.7	44.5	44.3	45.2	45.1	45.3	45.3	45.6	45.9
Fabricated metal products	42.4	42.7	42.4	42.5	42.6	42.9	42.6	42.4	42.4	42.3	42.4	42.6	42.6	42.9	42.7
Industrial machinery and equipment	43.1	43.6	43.2	43.4	43.5	43.9	43.6	43.3	43.4	43.4	43.4	43.4	43.8	43.6	43.5
Electronic and other electrical equipment	41.5	42.0	41.3	41.9	42.1	42.3	42.0	42.0	42.0	41.7	41.7	41.8	42.0	42.0	41.6
Transportation equipment	44.0	44.5	44.7	44.6	45.0	44.8	44.5	44.2	43.7	44.3	43.9	44.4	44.0	44.7	43.6
Motor vehicles and equipment	44.9	45.0	45.6	45.3	45.7	45.3	45.2	44.8	44.0	44.7	44.1	45.0	44.3	45.0	43.4
Instruments and related products	41.7	42.0	41.6	42.1	42.0	41.9	41.9	41.8	41.7	42.3	42.0	41.9	42.2	41.8	41.6
Miscellaneous manufacturing	39.7	40.4	39.9	40.5	40.2	40.5	40.3	40.1	40.4	40.2	40.3	40.2	40.5	40.7	40.5
Nondurable goods	40.5	40.9	40.7	40.8	40.9	40.9	40.8	40.6	40.6	40.7	40.9	40.8	41.1	41.1	41.1
Overtime hours	4.0	4.4	4.2	4.3	4.4	4.4	4.3	4.1	4.3	4.2	4.3	4.4	4.5	4.5	4.4
Food and kindred products	41.0	41.3	41.2	41.3	41.3	41.1	41.4	40.9	41.1	41.0	41.2	41.2	41.6	41.6	41.5
Textile mill products	40.6	41.4	41.2	40.9	41.2	41.7	41.4	41.2	41.3	41.2	41.4	41.3	41.5	41.7	41.5
Apparel and other textile products	37.0	37.4	37.2	37.2	37.5	37.5	37.1	37.4	36.9	37.1	37.3	37.2	37.1	37.5	37.6
Paper and allied products	43.3	43.7	43.7	43.7	43.8	43.9	43.8	43.4	43.5	43.4	43.7	43.7	44.1	43.8	43.6
Printing and publishing	38.2	38.5	38.3	38.5	38.6	38.5	38.3	38.3	38.4	38.3	38.7	38.7	38.8	38.7	38.5
Chemicals and allied products	43.2	43.2	43.2	43.3	43.3	43.1	43.3	43.1	43.0	43.3	43.4	43.2	43.4	43.0	43.4
Rubber and miscellaneous plastics products	41.5	41.8	41.4	41.7	41.8	42.0	41.6	41.5	41.7	41.7	41.6	41.8	42.2	42.4	42.3
Leather and leather products	38.1	38.4	38.4	38.9	38.7	38.5	38.2	38.1	38.4	38.0	38.4	38.6	38.0	38.3	38.3
SERVICE-PRODUCING	32.7	32.8	32.7	33.0	33.0	32.7	32.7	32.9	32.7	32.9	32.8	32.8	33.1	32.8	33.0
TRANSPORTATION AND PUBLIC UTILITIES	39.6	39.7	39.5	39.7	39.8	39.3	39.5	39.6	39.0	40.1	39.9	39.8	40.2	39.7	40.1
WHOLESALE TRADE	38.3	38.4	38.2	38.6	38.6	38.4	38.4	38.5	38.3	38.4	38.3	38.3	38.7	38.2	38.4
RETAIL TRADE	28.8	28.9	28.8	29.1	29.1	28.9	28.9	28.9	28.8	29.1	28.8	28.9	28.9	28.9	29.0

[p] = preliminary.

NOTE: See "Notes on the data" for a description of the most recent benchmark revision.

14. Average hourly earnings of production or nonsupervisory workers on private nonfarm payrolls, by industry, seasonally adjusted

Industry	Annual average		1997												1997
	1996	1997[p]	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.[p]	Jan.[p]
PRIVATE SECTOR (in current dollars)	$ 11.81	$ 12.26	$12.05	$12.10	$12.14	$12.14	$12.19	$12.23	$12.24	$12.31	$12.35	$12.40	$12.48	$12.47	$12.51
Goods-producing	13.47	13.91	13.73	13.76	13.79	13.80	13.85	13.86	13.86	13.94	13.97	14.07	14.11	14.16	14.16
Mining	15.61	16.14	15.98	15.96	15.94	15.96	16.05	16.12	16.10	16.07	16.20	16.27	16.43	16.39	16.51
Construction	15.46	16.00	15.73	15.79	15.80	15.86	15.91	15.95	15.96	16.03	16.08	16.12	16.22	16.36	16.24
Manufacturing	12.78	13.17	13.02	13.03	13.07	13.07	13.11	13.12	13.11	13.20	13.22	13.35	13.37	13.39	13.39
Excluding overtime	12.12	12.46	12.34	12.35	12.37	12.38	12.38	12.42	12.41	12.50	12.51	12.60	12.63	12.64	12.65
Service-producing	11.25	11.71	11.49	11.54	11.59	11.58	11.63	11.69	11.70	11.77	11.81	11.85	11.94	11.91	11.96
Transportation and public utilities	14.44	14.89	14.74	14.64	14.73	14.76	14.80	14.85	14.95	15.01	14.95	15.01	15.05	15.09	15.20
Wholesale trade	12.87	13.43	13.12	13.23	13.30	13.27	13.33	13.42	13.38	13.54	13.54	13.57	13.73	13.69	13.68
Retail trade	7.99	8.34	8.19	8.21	8.25	8.26	8.28	8.30	8.32	8.36	8.42	8.46	8.50	8.50	8.55
Finance, insurance, and real estate	12.79	13.31	12.95	13.08	13.12	13.00	13.18	13.29	13.30	13.49	13.47	13.54	13.64	13.56	13.59
Services	11.79	12.28	12.05	12.12	12.16	12.16	12.20	12.26	12.26	12.33	12.36	12.41	12.50	12.49	12.53
PRIVATE SECTOR (in constant (1982) dollars)	7.43	7.54	7.46	7.47	7.49	7.49	7.52	7.54	7.53	7.56	7.56	7.58	7.62	7.61	–

– Data not available.

[p] = preliminary.

NOTE: See "Notes on the data" for a description of the most recent benchmark revision.

15. Average hourly earnings of production or nonsupervisory workers on private nonfarm payrolls, by industry

Industry	Annual average		1997												1998
	1996	1997[P]	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.[P]	Jan.[P]
PRIVATE SECTOR	$ 11.81	$ 12.26	$12.11	$12.14	$12.17	$12.17	$12.17	$12.17	$12.15	$12.21	$12.39	$12.43	$12.51	$12.51	$12.58
MINING	15.61	16.14	16.18	16.06	15.98	16.05	15.98	16.11	16.03	15.94	16.23	16.19	16.38	16.47	16.70
CONSTRUCTION	15.46	16.00	15.73	15.69	15.67	15.75	15.83	15.88	16.00	16.09	16.27	16.30	16.25	16.34	16.24
MANUFACTURING	12.78	13.17	13.04	13.02	13.08	13.09	13.09	13.10	13.11	13.15	13.24	13.29	13.37	13.48	13.42
Durable goods	13.34	13.74	13.62	13.58	13.64	13.64	13.64	13.66	13.62	13.71	13.81	13.89	13.97	14.07	13.96
Lumber and wood products	10.44	10.76	10.58	10.60	10.60	10.64	10.71	10.77	10.82	10.80	10.86	10.86	10.90	10.93	10.85
Furniture and fixtures	10.15	10.55	10.38	10.34	10.43	10.42	10.47	10.51	10.53	10.59	10.70	10.67	10.70	10.79	10.77
Stone, clay, and glass products	12.82	13.18	12.99	13.05	13.03	13.06	13.12	13.13	13.20	13.21	13.27	13.32	13.36	13.39	13.36
Primary metal industries	14.97	15.22	15.12	15.09	15.16	15.15	15.09	15.16	15.28	15.17	15.27	15.34	15.39	15.41	15.48
Blast furnaces and basic steel products	17.79	17.99	17.71	17.73	17.86	17.88	17.84	17.99	18.09	17.97	18.26	18.22	18.25	18.10	18.39
Fabricated metal products	12.52	12.83	12.75	12.75	12.78	12.80	12.78	12.77	12.69	12.79	12.85	12.90	12.97	13.09	13.02
Industrial machinery and equipment	13.59	14.06	13.91	13.88	13.93	13.94	13.92	13.95	14.01	14.02	14.18	14.22	14.29	14.39	14.34
Electronic and other electrical equipment	12.18	12.70	12.46	12.42	12.49	12.55	12.56	12.59	12.69	12.75	12.85	12.91	13.00	13.05	12.91
Transportation equipment	17.20	17.60	17.46	17.40	17.51	17.48	17.47	17.45	17.23	17.47	17.60	17.92	17.98	18.15	17.83
Motor vehicles and equipment	17.75	18.09	18.02	17.88	18.01	18.01	17.97	17.92	17.54	17.86	18.05	18.50	18.57	18.71	18.31
Instruments and related products	13.14	13.55	13.38	13.39	13.47	13.47	13.52	13.55	13.54	13.52	13.66	13.63	13.70	13.73	13.69
Miscellaneous manufacturing	10.38	10.60	10.59	10.56	10.56	10.53	10.52	10.50	10.52	10.57	10.65	10.65	10.72	10.83	10.82
Nondurable goods	11.97	12.34	12.20	12.19	12.25	12.27	12.27	12.27	12.37	12.33	12.40	12.40	12.48	12.59	12.60
Food and kindred products	11.20	11.49	11.41	11.32	11.40	11.45	11.48	11.45	11.52	11.51	11.51	11.45	11.60	11.73	11.70
Tobacco products	19.34	19.20	18.56	18.52	19.40	20.32	20.76	21.10	20.95	19.78	18.19	17.95	17.78	19.05	18.86
Textile mill products	9.69	10.02	9.93	9.89	9.92	9.94	9.94	9.97	10.01	10.01	10.09	10.10	10.15	10.24	10.25
Apparel and other textile products	7.96	8.25	8.12	8.19	8.24	8.21	8.23	8.25	8.20	8.23	8.33	8.32	8.33	8.43	8.45
Paper and allied products	14.67	15.06	14.84	14.78	14.93	15.00	14.98	14.99	15.18	15.13	15.19	15.19	15.24	15.30	15.20
Printing and publishing	12.65	13.06	12.86	12.90	13.01	12.99	12.93	12.90	13.01	13.07	13.22	13.20	13.25	13.30	13.29
Chemicals and allied products	16.17	16.58	16.37	16.49	16.42	16.42	16.47	16.54	16.59	16.57	16.63	16.65	16.85	16.91	16.93
Petroleum and coal products	19.32	20.20	20.13	20.42	20.51	19.97	19.98	19.94	20.02	19.99	20.25	20.29	20.40	20.55	20.44
Rubber and miscellaneous plastics products	11.24	11.57	11.49	11.45	11.50	11.53	11.50	11.53	11.57	11.57	11.65	11.64	11.65	11.81	11.84
Leather and leather products	8.56	8.95	8.83	8.91	8.86	8.87	8.89	8.91	8.75	8.87	9.07	9.13	9.10	9.17	9.25
TRANSPORTATION AND PUBLIC UTILITIES	14.44	14.89	14.71	14.66	14.70	14.77	14.72	14.78	14.95	15.00	15.01	15.04	15.14	15.12	15.16
WHOLESALE TRADE	12.87	13.43	13.18	13.26	13.28	13.33	13.32	13.36	13.37	13.47	13.52	13.56	13.74	13.71	13.77
RETAIL TRADE	7.99	8.34	8.24	8.24	8.27	8.28	8.27	8.27	8.27	8.29	8.45	8.47	8.51	8.50	8.61
FINANCE, INSURANCE, AND REAL ESTATE	12.79	13.31	12.99	13.15	13.20	13.09	13.18	13.23	13.18	13.35	13.45	13.53	13.69	13.58	13.63
SERVICES	11.79	12.28	12.19	12.24	12.24	12.20	12.17	12.15	12.07	12.12	12.36	12.42	12.58	12.62	12.68

[P] = preliminary.

NOTE: See "Notes on the data" for a description of the most recent benchmark revision.

16. Average weekly earnings of production or nonsupervisory workers on private nonfarm payrolls, by industry

Industry	Annual average		1997												1998
	1996	1997[P]	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.[P]	Jan.[P]
PRIVATE SECTOR															
Current dollars	$ 406.26	$ 424.20	$410.53	$418.83	$421.08	$418.65	$419.87	$424.73	$421.61	$427.35	$429.93	$430.08	$435.35	$434.10	$430.24
Seasonally adjusted	–	–	414.52	421.08	422.47	418.83	420.56	423.16	421.06	425.93	426.08	427.80	434.30	431.46	435.35
Constant (1982) dollars	255.51	260.89	254.51	258.86	259.93	258.11	258.86	261.53	259.45	262.50	263.12	262.89	266.11	265.83	263.35
MINING	707.13	732.76	715.16	732.34	730.29	723.86	731.88	737.84	724.56	726.86	740.09	735.03	748.57	742.80	749.83
CONSTRUCTION	602.94	622.40	572.57	588.38	601.73	609.53	628.45	627.26	641.60	638.77	650.80	647.11	614.25	627.46	605.75
MANUFACTURING															
Current dollars	531.65	553.14	541.16	541.63	549.36	547.16	548.47	550.20	540.13	552.30	561.38	560.84	569.56	580.99	560.96
Constant (1982) dollars	334.37	340.18	335.50	334.75	339.11	337.34	338.14	338.79	332.39	339.25	343.56	342.81	348.14	354.95	343.40
Durable goods	565.62	588.07	576.13	577.15	585.16	582.43	583.79	584.65	570.68	585.42	595.21	597.27	604.90	617.67	593.30
Lumber and wood products	425.95	441.16	418.97	426.12	431.42	438.37	442.32	446.96	441.46	446.04	450.69	450.69	451.26	450.32	435.09
Furniture and fixtures	399.91	424.11	407.93	403.26	416.16	411.59	416.71	419.35	415.94	428.90	439.77	434.27	440.84	454.26	440.49
Stone, clay, and glass products	555.11	569.38	531.29	548.10	553.78	560.27	573.34	572.47	571.56	578.60	586.53	584.75	575.82	582.47	563.79
Primary metal industries	661.67	683.38	672.84	673.01	679.17	677.21	674.52	679.17	670.79	678.10	691.73	691.83	700.25	710.40	701.24
Blast furnaces and basic steel products	791.66	807.75	791.64	787.21	798.34	802.81	797.45	802.35	801.39	805.06	825.35	819.90	830.38	834.41	842.26
Fabricated metal products	530.85	547.84	536.78	539.33	543.15	542.72	543.15	544.00	527.90	543.58	552.55	553.41	561.60	575.96	554.65
Industrial machinery and equipment	585.73	613.02	602.30	603.78	610.13	607.78	605.52	605.43	599.63	604.26	619.67	615.73	628.76	644.67	625.22
Electronic and other electrical equipment	505.47	533.40	513.35	519.16	527.08	524.59	523.75	528.78	522.83	531.68	540.99	540.93	553.80	562.46	535.77
Transportation equipment	756.80	783.20	778.72	770.82	787.95	781.36	780.91	778.27	730.55	773.92	781.44	799.23	800.11	829.46	777.39
Motor vehicles and equipment	769.98	814.05	819.91	804.60	824.86	817.65	817.64	811.78	740.19	798.34	806.84	834.35	831.94	866.27	794.65
Instruments and related products	547.94	569.10	557.95	562.38	568.43	561.70	563.78	567.75	557.85	569.19	575.09	571.10	583.62	589.02	570.87
Miscellaneous manufacturing	412.09	428.24	419.36	423.46	425.57	423.31	420.80	421.05	415.54	425.97	434.52	464.52	441.66	447.28	434.96
Nondurable goods	484.79	504.71	494.10	492.48	498.58	496.94	498.16	499.39	499.75	504.30	513.36	509.64	517.92	526.26	514.08
Food and kindred products	459.20	474.54	464.39	460.72	463.98	462.58	471.83	467.16	473.47	479.97	486.87	478.61	489.52	496.18	479.70
Tobacco products	773.60	746.88	727.55	724.13	758.54	780.29	803.41	827.12	739.54	747.68	716.69	712.62	702.31	786.77	716.68
Textile mill products	393.41	414.83	407.13	398.57	408.70	410.52	409.53	415.75	406.41	416.42	423.78	418.14	425.29	431.10	423.33
Apparel and other textile products	294.52	308.55	299.63	302.21	309.00	305.41	306.16	311.85	300.12	307.80	313.21	312.83	131.21	321.18	315.19
Paper and allied products	635.21	658.12	649.99	639.97	649.46	651.00	650.13	650.57	657.29	656.64	669.88	665.32	676.66	683.91	664.24
Printing and publishing	483.23	502.81	486.11	491.49	503.49	497.52	492.63	490.20	495.68	504.50	518.22	513.48	519.40	522.69	505.02
Chemicals and allied products	698.54	716.26	705.55	710.72	709.34	706.06	709.86	712.87	708.39	712.51	723.41	720.95	736.35	742.35	733.07
Petroleum and coal products	842.35	870.62	905.85	886.23	881.93	846.73	847.15	855.43	854.85	859.57	876.83	878.56	885.36	867.21	887.10
Rubber and miscellaneous plastics products	466.46	483.63	475.69	475.18	480.70	480.80	479.55	480.80	474.37	482.47	489.30	487.72	495.13	511.37	500.83
Leather and leather products	326.14	343.68	332.89	336.80	341.11	337.95	339.60	345.71	330.75	340.61	353.73	352.42	350.35	355.80	348.73
TRANSPORTATION AND PUBLIC UTILITIES	571.82	591.13	570.75	579.07	580.65	578.98	578.50	588.24	589.03	607.50	603.40	598.59	610.14	601.78	598.82
WHOLESALE TRADE	492.92	515.71	499.52	510.51	511.28	510.54	512.82	517.03	512.07	518.60	519.17	520.70	531.74	526.46	524.64
RETAIL TRADE	230.11	241.03	230.72	236.49	237.35	236.81	238.18	243.14	244.50	246.21	245.05	243.94	245.09	248.20	241.94
FINANCE, INSURANCE, AND REAL ESTATE	459.16	480.49	463.74	482.61	481.80	469.93	473.16	484.22	471.84	481.94	481.51	485.73	502.42	486.16	489.32
SERVICES	382.00	400.33	390.08	400.25	399.02	395.28	394.31	398.52	395.90	398.75	401.70	404.89	412.62	411.41	410.83

– Data not available.

[P] = preliminary.

NOTE: See "Notes on the data" for a description of the most recent benchmark revision.

17. Diffusion indexes of employment change, seasonally adjusted

[In percent]

Timespan and year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov	Dec.
	Private nonfarm payrolls, 356 industries											
Over 1-month span:												
1995	62.4	60.1	54.5	55.6	48.0	53.9	54.1	59.8	57.0	54.9	57.2	57.9
1996	51.7	64.3	60.1	54.9	62.9	60.5	56.5	59.3	54.4	62.6	58.1	61.0
1997	59.3	59.1	59.0	61.1	57.4	50.7	58.8	58.7	56.5	64.2	61.7	60.8
1998	62.5	–	–	–	–	–	–	–	–	–	–	–
Over 3-month span:												
1995	65.4	62.5	58.7	53.2	54.6	52.4	57.9	59.6	59.7	59.0	57.0	56.3
1996	62.6	63.6	62.6	61.2	62.1	63.1	62.6	58.8	62.8	60.4	64.7	65.0
1997	64.6	62.2	64.2	65.6	59.7	58.7	59.1	65.0	65.3	67.3	68.3	67.3
Over 6-month span:												
1995	66.9	61.4	58.1	56.6	58.1	58.1	56.7	59.8	60.3	59.1	61.5	63.3
1996	62.2	63.5	63.5	63.5	62.6	61.2	65.3	63.6	62.6	64.5	64.2	67.4
1997	67.6	66.6	64.5	64.6	64.3	66.7	67.0	69.5	71.2	–	–	–
Over 12-month span:												
1995	63.6	62.4	62.6	63.3	61.7	61.9	58.7	62.2	62.2	61.1	62.2	63.3
1996	63.5	64.7	62.4	62.9	64.7	64.2	65.0	63.1	63.8	66.7	65.7	65.0
1997	67.3	66.2	69.4	70.4	70.1	69.5	70.4	–	–	–	–	–
	Manufacturing payrolls, 139 industries											
Over 1-month span:												
1995	54.3	56.1	44.2	51.4	42.1	42.8	43.5	52.2	47.1	50.0	47.5	50.7
1996	45.7	54.3	47.8	39.2	52.2	52.2	44.2	52.9	44.2	50.7	49.6	52.2
1997	54.0	50.4	52.9	52.9	51.4	49.3	51.8	49.6	54.3	57.6	59.4	55.4
1998	60.1	–	–	–	–	–	–	–	–	–	–	–
Over 3-month span:												
1995	59.7	50.4	47.5	40.3	42.4	36.3	38.5	43.9	49.3	46.4	45.3	43.9
1996	47.5	47.8	42.1	38.5	43.2	45.0	48.9	43.2	50.4	46.4	52.5	52.5
1997	53.2	51.4	50.7	52.5	48.6	48.9	48.6	53.6	55.8	62.9	62.9	65.1
Over 6-month span:												
1995	55.8	48.6	43.9	38.8	39.2	39.6	38.8	39.6	43.9	45.0	44.2	44.6
1996	41.4	41.7	41.0	38.1	39.6	40.6	47.5	46.8	45.3	50.4	48.2	53.2
1997	53.2	53.2	50.4	49.3	48.6	52.2	55.0	58.3	59.0	62.9	–	–
Over 12-month span:												
1995	46.0	44.2	46.0	47.8	41.0	41.7	38.5	38.8	36.3	37.4	38.1	39.9
1996	39.6	42.8	39.2	39.6	42.4	40.3	43.5	40.3	43.5	46.8	46.4	47.1
1997	51.4	47.8	52.2	55.0	57.6	56.5	56.1	–	–	–	–	–

– Data not available.

NOTE: Figures are the percent of industries with employment increasing plus one-half of the industries with unchanged employment, where 50 percent indicates an equal balance between industries with increasing and decreasing employment. Data for the 2 most recent months shown in each span are preliminary. See the "Definitions" in this section. See "Notes on the data" for a description of the most recent benchmark revision.

18. Annual data: Employment status of the population

[Numbers in thousands]

Employment status	1989	1990	1991	1992	1993	1994	1995	1996	1997
Civilian noninstitutional population	186,393	189,164	190,925	192,805	194,838	196,814	198,584	200,591	203,133
Civilian labor force	123,869	125,840	126,346	128,105	129,200	131,056	132,304	133,943	136,297
Labor force participation rate	66.5	66.5	66.2	66.4	66.3	66.6	66.6	66.8	67.1
Employed	117,342	118,793	117,718	118,492	120,259	123,060	124,900	126,708	129,558
Employment-population ratio	63.0	62.8	61.7	61.5	61.7	62.5	62.9	63.2	63.8
Agriculture	3,199	3,223	3,269	3,247	3,115	3,409	3,440	3,443	3,399
Nonagricultural industries	114,142	115,570	114,499	115,245	117,144	119,651	121,460	123,264	126,159
Unemployed	6,528	7,047	8,628	9,613	8,940	7,996	7,404	7,236	6,739
Unemployment rate	5.3	5.6	6.8	7.5	6.9	6.1	5.6	5.4	4.9
Not in the labor force	62,523	63,324	64,578	64,700	65,638	65,758	66,280	66,647	66,837

19. Annual data: Employment levels by industry

[In thousands]

Industry	1989	1990	1991	1992	1993	1994	1995	1996	1997[p]
Total employment	107,895	109,419	108,256	108,604	110,730	114,172	117,191	119,523	122,259
Private sector	90,117	91,115	89,854	89,959	91,889	95,044	97,885	100,076	102,605
Goods-producing	25,254	24,905	23,745	23,231	23,352	23,908	24,265	24,431	24,739
Mining	692	709	689	635	610	601	581	574	574
Construction	5,171	5,120	4,650	4,492	4,668	4,986	5,160	5,400	5,629
Manufacturing	19,391	19,076	18,406	18,104	18,075	18,321	18,524	18,457	18,537
Service-producing	82,642	84,514	84,511	85,373	87,378	90,264	92,925	95,092	97,520
Transportation and public utilities	5,625	5,793	5,762	5,721	5,829	5,993	6,132	6,261	6,425
Wholesale trade	6,187	6,173	6,081	5,997	5,981	6,162	6,378	6,483	6,657
Retail trade	19,475	19,601	19,284	19,356	19,773	20,507	21,187	21,625	22,136
Finance, insurance, and real estate	6,668	6,709	6,646	6,602	6,757	6,896	6,806	6,899	7,053
Services	26,907	27,934	28,336	29,052	30,197	31,579	33,117	34,377	35,595
Government	17,779	18,304	18,402	18,645	18,841	19,128	19,305	19,447	19,654
Federal	2,988	3,085	2,966	2,969	2,915	2,870	2,822	2,757	2,700
State	4,182	4,305	4,355	4,408	4,488	4,576	4,635	4,624	4,648
Local	10,609	10,914	11,081	11,267	11,438	11,682	11,849	12,066	12,307

NOTE: See "Notes on the data" for a description of the most recent benchmark revision.

20. Annual data: Average hours and earnings of production or nonsupervisory workers on nonfarm payrolls, by industry

Industry	1989	1990	1991	1992	1993	1994	1995	1996	1997[p]
Private sector:									
Average weekly hours	34.6	34.5	34.3	34.4	34.5	34.7	34.5	34.4	34.6
Average hourly earnings (in dollars)	9.66	10.01	10.32	10.57	10.83	11.12	11.43	11.81	12.26
Average weekly earnings (in dollars)	334.24	345.35	353.98	363.61	373.64	385.86	394.34	406.26	424.20
Mining:									
Average weekly hours	43.0	44.1	44.4	43.9	44.3	44.8	44.7	45.3	45.4
Average hourly earnings (in dollars)	13.26	13.68	14.19	14.54	14.60	14.88	15.30	15.61	16.13
Average weekly earnings (in dollars)	570.18	603.29	630.04	638.31	646.78	666.62	683.91	707.13	732.30
Construction:									
Average weekly hours	37.9	38.2	38.1	38.0	38.5	38.9	38.9	39.0	38.9
Average hourly earnings (in dollars)	13.54	13.77	14.00	14.15	14.38	14.73	15.09	15.46	16.00
Average weekly earnings (in dollars)	513.17	526.01	533.40	537.70	553.63	573.00	587.00	602.94	622.40
Manufacturing:									
Average weekly hours	41.0	40.8	40.7	41.0	41.4	42.0	41.6	41.6	42.0
Average hourly earnings (in dollars)	10.48	10.83	11.18	11.46	11.74	12.07	12.37	12.78	13.17
Average weekly earnings (in dollars)	429.68	441.86	455.03	469.86	486.04	506.94	514.59	531.65	553.14
Transportation and public utilities:									
Average weekly hours	38.9	38.9	38.7	38.9	39.6	39.9	39.4	39.6	39.7
Average hourly earnings (in dollars)	12.60	12.97	13.22	13.45	13.62	13.86	14.13	14.44	14.89
Average weekly earnings (in dollars)	490.14	504.53	511.61	523.21	539.35	553.01	556.72	571.82	591.13
Wholesale trade:									
Average weekly hours	38.0	38.1	38.1	38.2	38.2	38.4	38.3	38.3	38.4
Average hourly earnings (in dollars)	10.39	10.79	11.15	11.39	11.74	12.06	12.43	12.87	13.42
Average weekly earnings (in dollars)	394.82	411.10	424.82	435.10	448.47	463.10	476.07	492.92	515.33
Retail trade:									
Average weekly hours	28.9	28.8	28.6	28.8	28.8	28.9	28.8	28.8	28.9
Average hourly earnings (in dollars)	6.53	6.75	6.94	7.12	7.29	7.49	7.69	7.99	8.34
Average weekly earnings (in dollars)	188.72	194.40	198.48	205.06	209.95	216.46	221.47	230.11	241.03
Finance, insurance, and real estate:									
Average weekly hours	35.8	35.8	35.7	35.8	35.8	35.8	35.9	35.9	36.1
Average hourly earnings (in dollars)	9.53	9.97	10.39	10.82	11.35	11.83	12.32	12.79	13.31
Average weekly earnings (in dollars)	341.17	356.93	370.92	387.36	406.33	423.51	442.29	459.16	480.49
Services:									
Average weekly hours	32.6	32.5	32.4	32.5	32.5	32.5	32.4	32.4	32.6
Average hourly earnings (in dollars)	9.38	9.83	10.23	10.54	10.78	11.04	11.39	11.79	12.28
Average weekly earnings (in dollars)	305.79	319.48	331.45	342.55	350.35	358.80	369.04	382.00	400.33

21. Employment Cost Index, compensation,[1] by occupation and industry group

[June 1989 = 100]

Series	1995	1996				1997				Percent change	
	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	3 months ended	12 months ended
										Dec. 1997	
Civilian workers[2]	127.2	128.3	129.2	130.2	130.9	132.0	132.8	134.1	135.2	0.8	3.3
Workers, by occupational group:											
White-collar workers	128.0	129.1	130.0	131.3	131.9	133.1	133.9	135.2	136.5	1.0	3.5
Professional specialty and technical	129.4	130.6	131.4	132.6	133.1	133.7	134.6	135.8	136.7	.7	2.7
Executive, administrative, and managerial	127.4	128.5	129.1	131.1	131.5	133.2	134.0	135.3	137.3	1.5	4.4
Administrative support, including clerical	129.0	130.1	130.8	132.0	132.6	133.6	134.6	135.8	136.9	.8	3.2
Blue-collar workers	125.8	126.7	127.7	128.3	129.1	129.8	130.9	131.8	132.4	.5	2.6
Service occupations	127.4	128.0	128.7	129.7	131.0	132.0	132.7	134.6	135.6	.7	3.5
Workers, by industry division:											
Goods-producing	127.4	128.3	129.3	130.1	130.9	131.5	132.7	133.6	134.1	.4	2.4
Manufacturing	128.3	129.3	130.4	131.3	132.1	132.6	133.8	134.6	135.3	.5	2.4
Service-producing	127.1	128.2	129.1	130.2	130.9	132.1	132.9	134.2	135.5	1.0	3.5
Services	129.4	130.4	131.2	132.5	133.2	134.1	134.9	136.5	137.6	.8	3.3
Health services	132.0	132.5	133.4	134.1	134.4	135.2	135.7	136.7	137.9	.9	2.6
Hospitals	131.4	132.3	132.9	133.6	133.8	134.2	134.6	135.6	136.7	.8	2.2
Educational services	130.2	130.5	130.8	133.2	133.9	134.0	134.2	136.5	137.0	.4	2.3
Public administration[3]	128.3	129.2	129.6	130.7	131.8	133.0	133.0	134.1	135.1	.7	2.5
Nonmanufacturing	126.8	127.9	128.8	129.8	130.5	131.7	132.5	133.8	135.1	1.0	3.5
Private industry workers	126.7	127.9	129.0	129.8	130.6	131.7	132.8	133.9	135.1	.9	3.4
Excluding sales occupations	127.1	128.3	129.2	130.2	130.8	131.9	133.0	134.1	135.2	.8	3.4
Workers, by occupational group:											
White-collar workers	127.6	129.0	130.0	131.1	131.7	133.1	134.1	135.2	136.7	1.1	3.8
Excluding sales occupations	128.6	129.9	130.7	132.0	132.5	133.7	134.8	135.9	137.4	1.1	3.7
Professional specialty and technical occupations	129.9	131.6	132.6	133.3	133.7	134.6	135.9	136.7	137.8	.8	3.1
Executive, administrative, and managerial occupations	126.9	128.0	128.8	130.9	131.3	133.0	133.9	135.2	137.4	1.6	4.6
Sales occupations	123.2	124.8	126.9	126.7	128.1	130.1	130.7	132.2	133.5	1.0	4.2
Administrative support occupations, including clerical	129.0	130.1	130.8	132.0	132.5	133.7	134.7	135.9	137.0	.8	3.4
Blue-collar workers	125.6	126.6	127.6	128.1	129.0	129.6	130.8	131.7	132.3	.5	2.6
Precision production, craft, and repair occupations	125.7	126.5	127.7	128.2	129.1	129.6	130.9	131.7	131.9	.2	2.2
Machine operators, assemblers, and inspectors	126.2	127.1	128.1	128.7	129.5	130.0	131.2	132.2	133.0	.6	2.7
Transportation and material moving occupations	123.0	123.9	124.7	124.9	125.2	126.1	126.8	128.0	128.9	.7	3.0
Handlers, equipment cleaners, helpers, and laborers	126.8	128.5	129.3	130.0	131.3	132.8	133.4	134.2	135.8	1.2	3.4
Service occupations	125.2	125.8	126.5	127.4	128.9	129.8	130.9	133.1	134.1	.8	4.0
Production and nonsupervisory occupations[4]	126.3	127.5	128.6	129.2	130.0	131.1	132.1	133.2	134.2	.8	3.2
Workers, by industry division:											
Goods-producing	127.3	128.2	129.3	130.1	130.9	131.4	132.7	133.6	134.1	.4	2.4
Excluding sales occupations	127.0	128.0	129.0	129.8	130.5	131.1	132.3	133.1	133.6	.4	2.4
White-collar occupations	129.0	130.0	131.0	132.2	132.9	133.5	134.8	135.6	136.2	.4	2.5
Excluding sales occupations	128.2	129.4	130.2	131.5	132.1	132.6	133.8	134.5	135.0	.4	2.2
Blue-collar occupations	126.3	127.1	128.3	128.9	129.6	130.2	131.4	132.4	132.8	.3	2.5
Construction	123.4	124.3	125.3	125.9	126.4	127.2	128.7	129.7	129.7	.0	2.6
Manufacturing	128.3	129.3	130.4	131.3	132.1	132.6	133.8	134.6	135.3	.5	2.4
White-collar occupations	129.5	130.5	131.6	132.8	133.6	133.9	135.2	135.8	136.7	.7	2.3
Excluding sales occupations	128.3	129.5	130.5	131.8	132.5	132.8	133.8	134.5	135.3	.6	2.1
Blue-collar occupations	127.5	128.4	129.5	130.2	131.1	131.7	132.8	133.7	134.3	.4	2.4
Durables	129.0	129.7	131.2	131.9	132.6	133.0	134.1	135.0	135.7	.5	2.3
Nondurables	127.0	128.3	128.9	130.0	131.0	131.7	133.0	133.7	134.5	.6	2.7
Service-producing	126.2	127.6	128.6	129.5	130.2	131.6	132.5	133.8	135.3	1.1	3.9
Excluding sales occupations	127.2	128.4	129.2	130.3	130.9	132.2	133.3	134.5	136.1	1.2	4.0
White-collar occupations	127.1	128.5	129.6	130.6	131.1	132.7	133.7	134.9	136.6	1.3	4.2
Excluding sales occupations	128.7	130.0	130.9	132.2	132.6	134.0	135.1	136.3	138.1	1.3	4.1
Blue-collar occupations	124.0	125.2	126.0	126.4	127.3	128.2	129.2	130.0	130.9	.7	2.8
Service occupations	124.8	125.3	126.1	127.1	128.6	129.5	130.6	132.7	133.9	.9	4.1
Transportation and public utilities	126.6	127.9	128.4	129.3	130.4	131.3	131.7	132.9	134.2	1.0	2.9
Transportation	125.1	126.9	127.7	128.2	129.2	130.6	130.9	132.1	133.4	1.0	3.3
Public utilities	128.5	128.9	129.1	130.4	131.7	132.0	132.5	133.7	135.1	1.0	2.6
Communications	128.3	128.0	127.5	129.1	131.1	130.2	130.5	131.8	134.0	1.7	2.2
Electric, gas, and sanitary services	128.7	130.1	131.1	132.0	132.4	134.2	134.9	136.0	136.4	.3	3.0
Wholesale and retail trade	124.2	125.5	126.4	127.5	128.6	130.1	131.2	132.4	132.9	.4	3.3
Excluding sales occupations	125.0	125.9	126.4	128.0	129.0	130.4	131.9	133.0	134.0	.8	3.9
Wholesale trade	127.0	127.5	129.3	129.9	130.9	132.9	133.8	134.6	135.1	.4	3.2
Excluding sales occupations	127.1	127.4	128.7	130.0	130.9	132.6	133.7	134.5	135.4	.7	3.4
Retail trade	122.7	124.5	124.8	126.2	127.4	128.5	129.7	131.1	131.7	.5	3.4
Food stores	122.4	123.6	124.4	127.0	128.4	128.2	128.2	129.8	129.4	–.3	.8
General merchandise stores	121.7	122.4	123.6	124.6	126.3	126.4	127.7	128.6	130.0	1.1	2.9

See footnotes at end of table.

21. Continued—Employment Cost Index, compensation,[1] by occupation and industry group

[June 1989 = 100]

Series	1995	1996				1997				Percent change	
	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	3 months ended	12 months ended
										Dec. 1997	
Finance, insurance, and real estate	123.1	124.5	126.3	126.7	126.0	128.6	129.4	130.5	134.5	3.1	6.7
Excluding sales occupations	125.7	127.5	128.5	129.7	129.2	131.5	132.4	133.5	137.6	3.1	6.5
Banking, savings and loan, and other credit agencies	124.4	126.9	128.2	130.3	128.0	130.6	131.6	133.1	140.6	5.6	9.8
Insurance	125.9	127.6	128.2	129.3	129.6	131.9	132.1	133.1	134.8	1.3	4.0
Services	129.4	130.7	131.7	132.7	133.4	134.6	135.7	137.0	138.5	1.1	3.8
Business services	126.3	128.9	129.2	130.2	131.8	133.3	134.2	136.3	138.6	1.7	5.2
Health services	132.2	132.6	133.5	134.2	134.5	135.5	135.9	137.0	138.1	.8	2.7
Hospitals	131.3	132.2	132.8	133.4	133.7	134.0	134.4	135.4	136.5	.8	2.1
Educational services	133.7	134.4	134.8	137.5	138.0	138.5	138.8	141.6	142.6	.7	3.3
Colleges and universities	135.2	135.9	136.2	138.6	139.1	139.5	139.9	142.5	143.7	.8	3.3
Nonmanufacturing	125.9	127.2	128.2	129.1	129.8	131.1	132.1	133.3	134.7	1.1	3.8
White-collar workers	127.0	128.5	129.5	130.5	131.1	132.7	133.6	134.9	136.5	1.2	4.1
Excluding sales occupations	128.6	130.0	130.8	132.1	132.5	134.0	135.1	136.2	137.9	1.2	4.1
Blue-collar occupations	123.7	124.6	125.6	125.9	126.7	127.5	128.6	129.4	130.1	.5	2.7
Service occupations	124.7	125.3	126.0	127.0	128.6	129.4	130.5	132.7	133.8	.8	4.0
State and local government workers	129.3	129.9	130.2	131.9	132.7	133.2	133.3	135.0	135.7	.5	2.3
Workers, by occupational group:											
White-collar workers	129.1	129.6	129.9	131.8	132.5	132.9	133.0	134.8	135.5	.5	2.3
Professional specialty and technical	128.8	129.1	129.5	131.6	132.3	132.5	132.5	134.6	135.1	.4	2.1
Executive, administrative, and managerial	129.9	130.7	131.0	132.0	132.9	134.1	134.4	135.6	136.4	.6	2.6
Administrative support, including clerical	129.1	130.0	130.4	131.8	133.0	133.3	133.5	135.3	136.1	.6	2.3
Blue-collar workers	128.0	129.0	129.5	130.3	131.2	132.1	132.3	133.3	134.2	.7	2.3
Workers, by industry division:											
Services	129.6	130.0	130.3	132.4	133.1	133.2	133.3	135.4	136.0	.4	2.2
Services excluding schools[5]	129.4	130.3	130.8	131.9	132.0	132.5	132.9	134.4	135.3	.7	2.5
Health services	131.6	132.5	133.1	134.0	134.1	134.5	134.9	136.0	137.2	.9	2.3
Hospitals	131.7	132.6	133.2	134.2	134.3	134.8	135.2	136.3	137.6	1.0	2.5
Educational services	129.4	129.7	130.0	132.3	133.0	133.1	133.2	135.4	135.9	.4	2.2
Schools	129.8	130.0	130.3	132.6	133.4	133.4	133.5	135.7	136.2	.4	2.1
Elementary and secondary	130.1	130.2	130.5	132.6	133.1	133.1	133.3	135.5	135.8	.2	2.0
Colleges and universities	128.7	129.4	129.9	132.5	134.0	134.3	134.1	136.3	137.2	.7	2.4
Public administration[3]	128.3	129.2	129.6	130.7	131.8	133.0	133.0	134.1	135.1	.7	2.5

[1] Cost (cents per hour worked) measured in the Employment Cost Index consists of wages, salaries, and employer cost of employee benefits.

[2] Consists of private industry workers (excluding farm and household workers) and State and local government (excluding Federal Government) workers.

[3] Consists of legislative, judicial, administrative, and regulatory activities.

[4] This series has the same industry and occupational coverage as the Hourly Earnings index, which was discontinued in January 1989.

[5] Includes, for example, library, social, and health services.

22. Employment Cost Index, wages and salaries, by occupation and industry group

[June 1989 = 100]

Series	1995	1996				1997				Percent change	
	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	3 months ended	12 months ended
										Dec. 1997	
Civilian workers[1]	123.9	125.1	126.1	127.2	128.0	129.2	130.1	131.6	132.8	0.9	3.8
Workers, by occupational group:											
White-collar workers	125.1	126.3	127.3	128.6	129.3	130.6	131.5	133.0	134.3	1.0	3.9
Professional specialty and technical	126.9	128.0	128.8	130.2	130.7	131.4	132.3	134.0	135.0	.7	3.3
Executive, administrative, and managerial	124.7	126.2	127.0	129.0	129.4	131.0	132.0	133.5	135.6	1.6	4.8
Administrative support, including clerical	125.2	126.4	127.1	128.4	129.1	130.4	131.4	132.7	133.7	.8	3.6
Blue-collar workers	121.7	122.8	123.9	124.5	125.4	126.2	127.5	128.4	129.3	.7	3.1
Service occupations	123.4	124.2	124.9	126.2	127.6	128.6	129.3	131.5	132.6	.8	3.9
Workers, by industry division:											
Goods-producing	122.9	123.9	125.1	126.1	126.8	127.6	128.9	129.9	130.6	.5	3.0
Manufacturing	124.3	125.4	126.5	127.7	128.4	129.1	130.3	131.3	132.2	.7	3.0
Service-producing	124.3	125.6	126.5	127.7	128.5	129.8	130.6	132.2	133.6	1.1	4.0
Services	126.9	128.0	128.9	130.3	131.1	132.0	132.9	134.8	136.0	.9	3.7
Health services	128.4	129.3	130.0	130.8	131.4	132.4	133.1	134.3	135.4	.8	3.0
Hospitals	127.8	128.6	129.2	130.0	130.5	131.0	131.5	132.5	133.6	.8	2.4
Educational services	128.5	128.8	129.1	131.6	132.3	132.5	132.6	135.3	135.9	.4	2.7
Public administration[2]	124.1	124.9	125.3	126.6	127.7	128.9	129.0	130.3	131.4	.8	2.9
Nonmanufacturing	123.7	125.0	125.9	127.0	127.8	129.1	130.0	131.5	132.8	1.0	3.9
Private industry workers	123.1	124.4	125.6	126.5	127.3	128.6	129.7	131.0	132.3	1.0	3.9
Excluding sales occupations	123.4	124.7	125.7	126.8	127.5	128.6	129.9	131.2	132.4	.9	3.8
Workers, by occupational group:											
White-collar workers	124.3	125.8	127.0	128.0	128.7	130.2	131.3	132.7	134.2	1.1	4.3
Excluding sales occupations	125.2	126.7	127.6	129.0	129.4	130.8	132.0	133.4	134.8	1.0	4.2
Professional specialty and technical occupations	126.1	127.8	128.8	129.6	129.9	131.0	132.4	133.7	134.8	.8	3.8
Executive, administrative, and managerial occupations	124.4	125.9	126.8	128.9	129.3	131.0	132.1	133.6	135.8	1.6	5.0
Sales occupations	120.4	122.0	124.4	123.9	125.9	127.8	128.3	129.8	131.4	1.2	4.4
Administrative support occupations, including clerical	125.3	126.5	127.3	128.5	129.2	130.6	131.7	132.9	133.9	.8	3.6
Blue-collar workers	121.4	122.5	123.7	124.3	125.1	126.0	127.3	128.3	129.1	.6	3.2
Precision production, craft, and repair occupations	121.4	122.4	123.7	124.2	125.1	125.8	127.4	128.2	128.7	.4	2.9
Machine operators, assemblers, and inspectors	122.3	123.4	124.5	125.4	126.4	127.2	128.5	129.5	130.6	.8	3.3
Transportation and material moving occupations	118.6	120.0	120.6	121.0	121.1	122.3	123.0	124.1	125.1	.8	3.3
Handlers, equipment cleaners, helpers, and laborers	122.6	124.2	125.1	125.8	127.1	128.4	129.3	130.2	131.8	1.2	3.7
Service occupations	121.4	122.2	123.0	124.1	125.7	126.6	127.6	129.9	131.1	.9	4.3
Production and nonsupervisory occupations[3]	122.4	123.7	124.9	125.6	126.5	127.7	128.8	130.1	131.2	.8	3.7
Workers, by industry division:											
Goods-producing	122.9	123.9	125.1	126.1	126.8	127.5	128.9	129.9	130.6	.5	3.0
Excluding sales occupations	122.4	123.5	124.6	125.7	126.3	127.0	128.3	129.3	130.0	.5	2.9
White-collar occupations	125.3	126.2	127.3	128.6	129.1	130.0	131.4	132.3	132.9	.5	2.9
Excluding sales occupations	124.2	125.3	126.3	127.7	128.1	128.9	130.0	130.9	131.6	.5	2.7
Blue-collar occupations	121.4	122.4	123.7	124.5	125.3	126.0	127.3	128.4	129.2	.6	3.1
Construction	117.4	118.3	119.6	120.4	120.8	122.0	123.6	124.7	124.9	.2	3.4
Manufacturing	124.3	125.4	126.5	127.7	128.4	129.1	130.3	131.3	132.2	.7	3.0
White-collar occupations	126.1	127.1	128.2	129.6	130.1	130.6	131.9	132.8	133.6	.6	2.7
Excluding sales occupations	124.8	126.0	127.0	128.4	128.9	129.3	130.5	131.3	132.2	.7	2.6
Blue-collar occupations	123.1	124.2	125.4	126.3	127.3	128.0	129.2	130.2	131.2	.8	3.1
Durables	124.3	125.1	126.5	127.7	128.4	129.0	130.1	131.2	131.9	.5	2.7
Nondurables	124.4	125.8	126.5	127.6	128.5	129.3	130.6	131.4	132.6	.9	3.2
Service-producing	123.2	124.7	125.8	126.7	127.5	129.0	130.1	131.5	133.1	1.2	4.4
Excluding sales occupations	124.2	125.6	126.5	127.6	128.3	129.7	130.9	132.3	133.9	1.2	4.4
White-collar occupations	124.0	125.6	126.8	127.8	128.5	130.1	131.2	132.6	134.3	1.3	4.5
Excluding sales occupations	125.6	127.2	128.1	129.5	129.9	131.5	132.7	134.2	135.9	1.3	4.6
Blue-collar occupations	121.4	122.7	123.5	123.8	124.8	126.0	127.2	127.9	128.9	.8	3.3
Service occupations	121.3	122.0	122.8	124.0	125.6	126.5	127.5	129.8	131.0	.9	4.3
Transportation and public utilities	123.7	124.6	125.0	125.9	127.0	128.2	128.8	130.1	131.3	.9	3.4
Transportation	121.6	122.9	123.2	123.8	124.7	126.5	126.9	128.5	129.5	.8	3.8
Public utilities	126.1	126.5	127.1	128.4	129.8	130.1	130.9	132.0	133.5	1.1	2.9
Communications	126.2	126.1	126.5	128.2	130.3	129.8	130.6	131.8	134.0	1.7	2.8
Electric, gas, and sanitary services	125.9	127.0	127.7	128.5	129.0	130.4	131.2	132.2	132.9	.5	3.0
Wholesale and retail trade	122.3	123.9	124.8	125.8	127.0	128.5	129.7	130.9	131.6	.5	3.6
Excluding sales occupations	123.2	124.4	124.9	126.5	127.7	129.3	131.1	132.2	133.2	.8	4.3
Wholesale trade	125.5	126.1	128.0	128.5	129.6	131.4	132.2	133.0	133.6	.5	3.1
Excluding sales occupations	125.7	126.3	127.6	128.9	129.8	131.8	132.8	133.9	135.0	.8	4.0
Retail trade	120.6	122.8	123.1	124.4	125.8	127.1	128.5	129.9	130.6	.5	3.8
Food stores	119.1	120.5	121.2	123.1	124.7	124.8	124.7	126.7	128.4	1.3	3.0
General merchandise stores	120.1	121.0	121.7	122.6	124.7	125.0	126.2	126.7	127.0	.2	1.8

See footnotes at end of table.

22. Continued—Employment Cost Index, wages and salaries, by occupation and industry group

[June 1989 = 100]

Series	1995	1996				1997				Percent change	
	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	3 months ended	12 months ended
										Dec. 1997	
Finance, insurance, and real estate	118.4	119.8	121.9	122.2	122.2	124.5	125.3	126.4	130.6	3.3	6.9
Excluding sales occupations	121.3	123.4	124.5	126.0	125.3	127.2	128.1	129.3	133.6	3.3	6.6
Banking, savings and loan, and other credit agencies	120.1	122.7	124.2	126.8	123.8	125.9	126.8	128.9	138.3	7.3	11.7
Insurance	122.2	123.6	124.1	125.4	126.0	127.9	128.0	128.7	130.2	1.2	3.3
Services	126.0	127.6	128.7	129.7	130.5	131.8	133.0	134.7	136.2	1.1	4.4
Business services	124.3	126.9	127.7	128.5	130.1	131.4	132.4	134.9	137.3	1.8	5.5
Health services	128.4	129.3	130.1	130.8	131.4	132.5	133.2	134.3	135.4	.8	3.0
Hospitals	127.7	128.5	129.1	129.7	130.3	130.7	131.2	132.2	133.2	.8	2.2
Educational services	129.4	130.1	130.4	133.3	133.8	134.5	134.8	137.8	138.4	.4	3.4
Colleges and universities	130.1	130.6	130.9	133.4	133.8	134.6	135.0	137.8	138.7	.7	3.7
Nonmanufacturing	122.5	123.9	125.1	125.9	126.8	128.2	129.3	130.7	132.1	1.1	4.2
White-collar workers	123.8	125.4	126.6	127.6	128.3	129.9	131.0	132.4	134.1	1.3	4.5
Excluding sales occupations	125.4	126.9	127.8	129.2	129.6	131.2	132.4	133.8	135.5	1.3	4.6
Blue-collar occupations	119.8	120.9	122.0	122.4	123.1	124.1	125.5	126.4	127.1	.6	3.2
Service occupations	121.2	122.0	122.7	123.9	125.5	126.4	127.4	129.7	130.9	.9	4.3
State and local government workers	127.3	127.8	128.1	130.1	130.9	131.4	131.5	133.6	134.4	.6	2.7
Workers, by occupational group:											
White-collar workers	127.4	127.9	128.2	130.3	131.1	131.4	131.5	133.7	134.5	.6	2.6
Professional specialty and technical	128.0	128.3	128.6	131.1	131.7	131.9	132.0	134.4	135.1	.5	2.6
Executive, administrative, and managerial	126.9	127.7	128.0	129.3	130.2	131.3	131.7	133.1	134.1	.8	3.0
Administrative support, including clerical	125.1	125.8	126.1	127.7	129.0	129.2	129.5	131.4	132.3	.7	2.6
Blue-collar workers	125.7	126.6	127.0	127.9	128.8	129.6	129.8	131.2	132.3	.8	2.7
Workers, by industry division:											
Services	128.2	128.6	128.9	131.2	131.9	132.1	132.2	134.7	135.3	.4	2.6
Services excluding schools[4]	127.4	128.2	128.7	130.1	130.5	131.2	131.6	133.3	134.4	.8	3.0
Health services	128.6	129.3	129.9	131.1	131.4	132.1	132.6	133.9	135.3	1.0	3.0
Hospitals	128.4	129.1	129.7	130.9	131.3	131.9	132.4	133.7	135.2	1.1	3.0
Educational services	128.3	128.5	128.8	131.3	132.0	132.1	132.2	134.8	135.3	.4	2.5
Schools	128.4	128.7	128.9	131.4	132.2	132.2	132.3	134.9	135.5	.4	2.5
Elementary and secondary	129.2	129.3	129.5	132.0	132.4	132.4	132.6	135.3	135.7	.3	2.5
Colleges and universities	125.9	126.8	127.1	129.8	131.2	131.5	131.4	133.6	134.6	.7	2.6
Public administration[2]	124.1	124.9	125.3	126.6	127.7	128.9	129.0	130.3	131.4	.8	2.9

[1] Consists of private industry workers (excluding farm and household workers) and State and local government (excluding Federal Government) workers.

[2] Consists of legislative, judicial, administrative, and regulatory activities.

[3] This series has the same industry and occupational coverage as the Hourly Earnings index, which was discontinued in January 1989.

[4] Includes, for example, library, social, and health services.

23. Employment Cost Index, benefits, private industry workers by occupation and industry group

[June 1989 = 100]

Series	1995	1996				1997				Percent change	
	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	3 months ended	12 months ended
										Dec. 1997	
Private industry workers	135.9	136.6	137.4	138.1	138.6	139.4	140.1	140.8	141.8	0.7	2.3
Workers, by occupational group:											
White-collar workers	136.7	137.7	138.4	139.5	139.7	140.8	141.5	142.0	143.4	1.0	2.6
Blue-collar workers	134.7	135.2	136.1	136.2	137.0	137.2	138.0	138.8	139.0	.1	1.5
Workers, by industry division:											
Goods-producing	137.1	137.7	138.6	138.8	139.7	139.9	140.9	141.5	141.5	.0	1.3
Service-producing	134.7	135.5	136.2	137.2	137.4	138.5	139.2	139.8	141.4	1.1	2.9
Manufacturing	136.7	137.5	138.5	138.8	139.8	139.9	141.0	141.4	141.7	.2	1.4
Nonmanufacturing	135.3	136.0	136.7	137.5	137.9	138.9	139.5	140.2	141.5	.9	2.6

24. Employment Cost Index, private nonfarm workers by bargaining status, region, and area size

[June 1989 = 100]

Series	1995	1996				1997				Percent change	
	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	3 months ended	12 months ended
										Dec. 1997	
COMPENSATION											
Workers, by bargaining status[1]											
Union	127.7	128.5	129.7	130.1	130.8	131.0	131.8	133.2	133.5	0.2	2.1
Goods-producing	127.5	127.9	129.0	129.2	129.8	130.0	131.2	132.3	132.5	.2	2.1
Service-producing	127.9	129.0	130.3	131.0	131.7	131.9	132.4	134.0	134.5	.4	2.1
Manufacturing	128.1	128.8	129.8	129.8	130.6	130.8	131.7	133.0	133.3	.2	2.1
Nonmanufacturing	127.1	128.0	129.2	129.9	130.4	130.6	131.5	132.9	133.2	.2	2.1
Nonunion	126.5	127.7	128.7	129.7	130.4	131.8	132.8	133.9	135.3	1.0	3.8
Goods-producing	127.2	128.3	129.4	130.4	131.3	132.0	133.2	134.0	134.7	.5	2.6
Service-producing	126.0	127.3	128.3	129.2	129.9	131.5	132.5	133.7	135.3	1.2	4.2
Manufacturing	128.3	129.3	130.5	131.7	132.5	133.1	134.4	135.1	135.9	.6	2.6
Nonmanufacturing	125.7	127.0	128.0	128.9	129.6	131.1	132.2	133.4	134.9	1.1	4.1
Workers, by region[1]											
Northeast	127.8	128.9	129.7	130.6	131.1	132.2	133.1	134.0	135.0	.7	3.0
South	125.6	127.0	127.8	128.8	129.7	130.8	131.5	132.5	134.6	1.6	3.8
Midwest (formerly North Central)	128.3	129.5	130.7	131.3	132.1	133.3	134.7	136.2	136.9	.5	3.6
West	125.0	125.9	127.3	128.3	128.9	130.3	131.4	132.5	133.4	.7	3.5
Workers, by area size[1]											
Metropolitan areas	126.8	128.0	129.1	130.0	130.6	131.7	132.8	133.9	135.1	.9	3.4
Other areas	126.5	127.2	128.0	128.7	130.2	131.4	132.4	133.8	135.3	1.1	3.9
WAGES AND SALARIES											
Workers, by bargaining status[1]											
Union	122.2	122.8	124.2	124.8	125.4	126.0	126.9	128.3	128.9	.5	2.8
Goods-producing	120.6	121.3	122.5	123.2	123.6	124.1	125.4	126.6	127.1	.4	2.8
Service-producing	124.2	124.8	126.2	126.8	127.6	128.2	128.8	130.4	131.2	.6	2.8
Manufacturing	122.0	122.9	123.9	124.5	125.2	125.6	126.5	127.8	128.6	.6	2.7
Nonmanufacturing	122.3	122.8	124.3	124.9	125.5	126.1	127.1	128.6	129.1	.4	2.9
Nonunion	123.3	124.8	125.9	126.9	127.7	129.1	130.3	131.6	133.0	1.1	4.2
Goods-producing	123.8	124.9	126.1	127.3	128.0	128.9	130.2	131.2	132.0	.6	3.1
Service-producing	123.0	124.6	125.7	126.6	127.5	129.1	130.2	131.6	133.2	1.2	4.5
Manufacturing	125.2	126.3	127.5	128.8	129.6	130.3	131.7	132.6	133.5	.7	3.0
Nonmanufacturing	122.6	124.2	125.2	126.1	127.0	128.5	129.7	131.1	132.6	1.1	4.4
Workers, by region[1]											
Northeast	123.6	124.9	126.0	127.0	127.7	128.8	129.8	130.7	131.6	.7	3.1
South	122.4	124.1	125.1	126.0	127.0	128.5	129.4	130.6	133.0	1.8	4.7
Midwest (formerly North Central)	123.6	125.1	126.2	126.9	127.7	129.0	130.4	132.2	133.0	.6	4.2
West	122.7	123.3	124.8	125.8	126.5	127.7	128.9	130.2	131.2	.8	3.7
Workers, by area size[1]											
Metropolitan areas	123.2	124.6	125.8	126.7	127.4	128.7	129.9	131.1	132.3	.9	3.8
Other areas	122.4	123.4	124.2	125.0	126.5	127.7	128.8	130.4	132.0	1.2	4.3

[1] The indexes are calculated differently from those for the occupation and industry groups. For a detailed description of the index calculation, see the *Monthly Labor Review* Technical Note, "Estimation procedures for the Employment Cost Index," May 1982.

25. Percent of full-time employees participating in employer-provided benefit plans, and in selected features within plans, medium and large private establishments, selected years, 1980–93

Item	1980	1982	1984	1986	1988	1989	1991	1993
Scope of survey (in 000's)	21,352	21,043	21,013	21,303	31,059	32,428	31,163	28,728
Number of employees (in 000's):								
With medical care	20,711	20,412	20,383	20,238	27,953	29,834	25,865	23,519
With life insurance	20,498	20,201	20,172	20,451	28,574	30,482	29,293	26,175
With defined benefit plan	17,936	17,676	17,231	16,190	19,567	20,430	18,386	16,015
Time-off plans								
Participants with:								
Paid lunch time	10	9	9	10	11	10	8	9
Average minutes per day	–	25	26	27	29	26	30	29
Paid rest time	75	76	73	72	72	71	67	68
Average minutes per day	–	25	26	26	26	26	28	26
Paid funeral leave	–	–	–	88	85	84	80	83
Average days per occurrence	–	–	–	3.2	3.2	3.3	3.3	3.0
Paid holidays	99	99	99	99	96	97	92	91
Average days per year	10.1	10.0	9.8	10.0	9.4	9.2	10.2	9.4
Paid personal leave	20	24	23	25	24	22	21	21
Average days per year	–	3.8	3.6	3.7	3.3	3.1	3.3	3.1
Paid vacations	100	99	99	100	98	97	96	97
Paid sick leave	62	67	67	70	69	68	67	65
Unpaid maternity leave	–	–	–	–	33	37	37	60
Unpaid paternity leave	–	–	–	–	16	18	26	53
Insurance plans								
Participants in medical care plans	97	97	97	95	90	92	83	82
Percent of participants with coverage for:								
Home health care	–	–	46	66	76	75	81	86
Extended care facilities	58	62	62	70	79	80	80	82
Physical exam	–	–	8	18	28	28	30	42
Percent of participants with employee contribution required for:								
Self coverage	26	27	36	43	44	47	51	61
Average monthly contribution	–	–	$11.93	$12.80	$19.29	$25.31	$26.60	$31.55
Family coverage	46	51	58	63	64	66	69	76
Average monthly contribution	–	–	$35.93	$41.40	$60.07	$72.10	$96.97	$107.42
Participants in life insurance plans	96	96	96	96	92	94	94	91
Percent of participants with:								
Accidental death and dismemberment insurance	69	72	74	72	78	71	71	76
Survivor income benefits	–	–	–	10	8	7	6	5
Retiree protection available	–	64	64	59	49	42	44	41
Participants in long-term disability insurance plans	40	43	47	48	42	45	40	41
Participants in sickness and accident insurance plans	54	51	51	49	46	43	45	44
Retirement plans								
Participants in defined benefit pension plans	84	84	82	76	63	63	59	56
Percent of participants with:								
Normal retirement prior to age 65	55	58	63	64	59	62	55	52
Early retirement available	98	97	97	98	98	97	98	95
Ad hoc pension increase in last 5 years	–	–	47	35	26	22	7	6
Terminal earnings formula	53	52	54	57	55	64	56	61
Benefit coordinated with Social Security	45	45	56	62	62	63	54	48
Participants in defined contribution plans	–	–	–	60	45	48	48	49
Participants in plans with tax-deferred savings arrangements	–	–	–	33	36	41	44	43
Other benefits								
Employees eligible for:								
Flexible benefits plans	–	–	–	2	5	9	10	12
Reimbursement accounts	–	–	–	5	12	23	36	52

NOTE: Dash indicates data not available.

26. Percent of full-time employees participating in employer-provided benefit plans, and in selected features within plans, small private establishments and State and local governments, 1987, 1990, 1992, and 1994

Item	Small private establishments			State and local governments			
	1990	1992	1994	1987	1990	1992	1994
Scope of survey (in 000's)	32,466	34,360	35,910	10,321	12,972	12,466	12,907
Number of employees (in 000's):							
With medical care	22,402	24,396	23,536	9,599	12,064	11,219	11,192
With life insurance	20,778	21,990	21,955	8,773	11,415	11,095	11,194
With defined benefit plan	6,493	7,559	5,480	9,599	11,675	10,845	11,708
Time-off plans							
Participants with:							
Paid lunch time	8	9	–	17	11	10	–
Average minutes per day	37	37	–	34	36	34	–
Paid rest time	48	49	–	58	56	53	–
Average minutes per day	27	26	–	29	29	29	–
Paid funeral leave	47	50	50	56	63	65	62
Average days per occurrence	2.9	3.0	3.1	3.7	3.7	3.7	3.7
Paid holidays	84	82	82	81	74	75	73
Average days per year[1]	9.5	9.2	7.5	10.9	13.6	14.2	11.5
Paid personal leave	11	12	13	38	39	38	38
Average days per year	2.8	2.6	2.6	2.7	2.9	2.9	3.0
Paid vacations	88	88	88	72	67	67	66
Paid sick leave	47	53	50	97	95	95	94
Unpaid leave	17	18	–	57	51	59	–
Unpaid paternity leave	8	7	–	30	33	44	–
Unpaid family leave	–	–	47	–	–	–	93
Insurance plans							
Participants in medical care plans	69	71	66	93	93	90	87
Percent of participants with coverage for:							
Home health care	79	80	–	76	82	87	84
Extended care facilities	83	84	–	78	79	84	81
Physical exam	26	28	–	36	36	47	55
Percent of participants with employee contribution required for:							
Self coverage	42	47	52	35	38	43	47
Average monthly contribution	$25.13	$36.51	$40.97	$15.74	$25.53	$28.97	$30.20
Family coverage	67	73	76	71	65	72	71
Average monthly contribution	$109.34	$150.54	$159.63	$71.89	$117.59	$139.23	$149.70
Participants in life insurance plans	64	64	61	85	88	89	87
Percent of participants with:							
Accidental death and dismemberment insurance	78	76	79	67	67	74	64
Survivor income benefits	1	1	2	1	1	1	2
Retiree protection available	19	25	20	55	45	46	46
Participants in long-term disability insurance plans	19	23	20	31	27	28	30
Participants in sickness and accident insurance plans	6	26	26	14	21	22	21
Retirement plans							
Participants in defined benefit pension plans	20	22	15	93	90	87	91
Percent of participants with:							
Normal retirement prior to age 65	54	50	–	92	89	92	92
Early retirement available	95	95	–	90	88	89	87
Ad hoc pension increase in last 5 years	7	4	–	33	16	10	13
Terminal earnings formula	58	54	–	100	100	100	99
Benefit coordinated with Social Security	49	46	–	18	8	10	49
Participants in defined contribution plans	31	33	34	9	9	9	9
Participants in plans with tax-deferred savings arrangements	17	24	23	28	45	45	24
Other benefits							
Employees eligible for:							
Flexible benefits plans	1	2	3	5	5	5	5
Reimbursement accounts	8	14	19	5	31	50	64

[1] Methods used to calculate the average number of paid holidays were revised in 1994 to count partial days more precisely. Average holidays for 1994 are not comparable with those reported in 1990 and 1992.

NOTE: Dash indicates data not available.

27. Work stoppages involving 1,000 workers or more

Measure	Annual totals		1996			1997									
	1995	1996	Oct.	Nov.	Dec.	Jan.[p]	Feb.[p]	Mar.[p]	Apr.[p]	May[p]	June[p]	July[p]	Aug.[p]	Sept.[p]	Oct.[p]
Number of stoppages:															
Beginning in period	31	37	5	2	1	1	0	1	6	6	0	2	2	6	3
In effect during period	34	38	8	7	5	6	4	4	7	12	3	4	3	6	5
Workers involved:															
Beginning in period (in thousands)	192	273	15.5	3.3	2.1	4.3	.0	2.7	55.8	16.9	.0	24.6	184.5	30.3	4.4
In effect during period (in thousands)	207	275	22.9	19.5	12.0	16.3	9.9	10.1	60.6	60.5	12.0	35.3	189.3	30.3	8.6
Days idle:															
Number (in thousands)	5,771	4,889	243.9	234.6	226.8	238.7	170.6	144.3	537.7	567.4	231.2	228.5	2,075.4	128.4	64.0
Percent of estimated working time[1]	.02	.02	.01	.01	.01	.01	.01	.01	.02	.02	.01	.01	.08	.00	.00

[1] Agricultural and government employees are included in the total employed and total working time; private household, forestry, and fishery employees are excluded. An explanation of the measurement of idleness as a percentage of the total time worked is found in "'Total economy' measures of strike idleness," *Monthly Labor Review*, October 1968, pp. 54–56.

[p] = preliminary.

28. Consumer Price Indexes for All Urban Consumers and for Urban Wage Earners and Clerical Workers: U.S. city average, by expenditure category and commodity or service group

[1982–84 = 100, unless otherwise indicated]

Series	Annual average		1997												1998
	1996	1997	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.
CONSUMER PRICE INDEX FOR ALL URBAN CONSUMERS															
All items	156.9	160.5	159.1	159.6	160.0	160.2	160.1	160.3	160.5	160.8	161.2	161.6	161.5	161.3	161.6
Food and beverages	153.7	157.7	156.9	156.9	157.1	157.1	157.1	157.1	157.5	158.1	158.4	158.7	158.9	159.1	160.3
Food	153.3	157.3	156.5	156.5	156.6	156.6	156.6	156.6	157.0	157.6	157.9	158.2	158.5	158.7	159.9
Food at home	154.3	158.1	157.9	157.7	157.7	157.5	157.5	157.3	157.7	158.5	158.6	159.0	159.1	159.2	161.0
Cereals and bakery products	174.0	177.6	176.5	176.7	176.7	176.9	176.9	178.2	178.3	178.6	178.1	178.4	178.0	178.4	179.0
Meats, poultry, fish, and eggs	144.8	148.5	149.6	148.8	147.8	147.7	147.7	147.9	148.2	149.1	149.1	148.9	149.3	148.4	148.3
Dairy and related products[1]	142.1	145.5	147.8	146.2	146.1	145.7	145.4	144.1	143.3	143.4	143.5	145.7	147.0	147.8	148.3
Fruits and vegetables	183.9	187.5	187.3	187.4	189.3	186.4	186.4	183.7	184.6	187.3	188.1	188.5	189.5	191.3	202.1
Nonalcoholic beverages and beverage materials	128.6	133.4	128.3	128.5	129.5	131.9	133.4	134.8	136.3	136.7	136.7	136.6	134.7	133.1	134.1
Other foods at home	142.9	147.3	144.8	145.4	145.5	146.9	147.1	147.8	148.6	148.7	148.9	149.0	147.7	147.7	148.7
Sugar and sweets	143.7	147.8	146.9	147.2	146.3	147.9	147.9	148.1	149.2	147.8	148.5	148.2	147.4	147.9	150.3
Fats and oils	140.5	141.7	142.3	142.7	142.4	142.4	142.0	141.6	141.4	141.4	142.0	141.7	140.4	140.3	140.5
Other foods	156.2	161.2	159.4	160.6	160.3	161.1	160.4	161.2	161.3	161.8	161.9	162.5	161.5	162.8	163.6
Other miscellaneous foods[1,2]	–	–	–	–	–	–	–	–	–	–	–	–	–	100.0	100.4
Food away from home[1]	152.7	157.0	155.3	155.6	156.0	156.2	156.3	156.6	157.1	157.4	157.8	158.2	158.6	159.0	159.2
Other food away from home[1,2]	–	–	–	–	–	–	–	–	–	–	–	–	–	100.0	100.1
Alcoholic beverages	158.5	162.8	161.1	161.8	162.1	162.3	162.8	162.7	162.9	163.2	163.5	163.7	163.7	164.0	164.6
Housing	152.8	156.8	155.1	155.8	155.9	155.8	155.9	156.9	157.5	157.6	157.7	157.7	157.7	157.7	158.3
Shelter	171.0	176.3	173.6	174.6	175.2	175.3	175.3	176.0	177.0	177.5	177.2	177.8	177.7	178.1	179.2
Rent of primary residence	162.0	166.7	164.4	164.8	165.1	165.5	165.9	166.4	166.8	167.3	167.8	168.2	168.7	169.1	169.5
Lodging away from home[2]	–	–	–	–	–	–	–	–	–	–	–	–	–	100.0	105.1
Owners' equivalent rent of primary residence[3]	176.8	181.9	179.5	179.9	180.1	180.5	180.9	181.4	182.1	182.6	183.2	183.6	184.2	184.7	185.1
Tenants' and household insurance[1,2]	–	–	–	–	–	–	–	–	–	–	–	–	–	100.0	100.3
Fuels and utilities	127.5	130.8	130.8	131.0	129.9	128.9	129.0	131.9	132.1	131.4	132.1	130.8	131.1	130.0	128.8
Fuels	115.2	117.9	119.1	119.2	117.2	115.3	115.3	119.8	119.6	118.6	119.7	117.4	117.7	115.8	114.5
Fuel oil and other fuels	99.2	99.8	111.5	109.6	105.5	102.1	100.4	98.0	94.7	93.5	93.7	95.3	96.6	97.2	96.4
Gas (piped) and electricity	122.1	125.1	124.9	125.3	123.4	121.7	121.9	127.5	127.8	126.7	128.1	125.1	125.3	123.0	121.6
Household furnishings and operations	124.7	125.4	124.9	125.2	125.4	125.5	125.8	125.7	125.6	125.2	125.4	125.4	125.2	125.1	125.6
Apparel	131.7	132.9	129.6	131.9	134.5	136.1	135.3	132.4	130.2	130.0	133.0	134.9	134.7	131.6	129.8
Men's and boys' apparel	127.7	130.1	127.0	127.3	129.2	131.4	132.0	129.0	128.0	128.9	131.4	133.1	133.0	131.2	129.8
Women's and girls' apparel	124.7	126.1	121.5	126.1	130.1	131.9	129.9	125.6	121.1	120.3	126.0	128.3	128.8	123.6	120.2
Infants' and toddlers' apparel[1]	129.7	129.0	127.9	127.2	129.7	133.7	133.8	132.9	131.3	127.3	126.7	126.2	126.0	125.8	124.8
Footwear	126.6	127.6	125.0	126.3	127.0	129.3	129.1	126.3	125.9	126.3	127.4	130.6	129.3	128.2	127.4
Transportation	143.0	144.3	145.0	144.8	144.9	144.8	144.4	144.0	143.7	143.8	144.3	144.5	143.9	143.2	142.7
Private transportation	140.0	141.0	141.8	141.9	141.5	141.3	141.0	140.7	140.1	140.8	141.0	140.9	140.6	140.0	139.3
New and used motor vehicles[2]	–	–	101.7	101.6	101.6	101.5	101.1	100.6	100.1	99.5	99.3	99.6	99.9	100.0	100.2
New vehicles	143.7	144.3	145.4	145.4	145.4	145.2	144.6	144.2	143.7	143.0	142.7	143.3	144.0	144.1	144.4
Used cars and trucks[1]	157.0	151.1	154.7	154.4	154.4	154.3	153.9	151.8	149.9	148.5	148.2	147.9	147.6	147.9	148.1
Motor fuel	106.3	106.2	108.6	108.1	106.4	106.0	105.7	105.9	103.9	107.6	109.3	106.7	104.6	101.9	97.8
Gasoline (all types)	105.9	105.8	107.9	107.4	105.8	105.4	105.2	105.4	103.5	107.4	109.2	106.5	104.1	101.3	97.2
Motor vehicle parts and equipment	102.2	101.9	102.4	102.6	102.2	101.8	101.7	101.7	102.3	101.8	101.7	101.4	101.6	101.4	101.3
Motor vehicle maintenance and repair	158.4	162.7	161.1	161.2	161.5	161.9	162.2	162.6	162.9	163.3	163.5	163.9	164.0	164.7	165.0
Public transportation	181.9	186.7	185.8	182.4	188.1	189.8	188.1	186.6	189.4	183.4	186.0	190.9	185.9	184.3	187.1
Medical care	228.2	234.6	231.8	232.7	233.4	233.8	234.2	234.4	234.8	235.2	235.4	235.8	236.4	237.1	238.1
Medical care commodities	210.4	215.3	212.8	213.9	214.7	215.2	215.6	216.0	216.0	215.5	215.3	215.6	215.8	216.8	217.6
Medical care services	232.4	239.1	236.3	237.1	237.7	238.1	238.5	238.7	239.2	239.8	240.0	240.5	241.2	241.8	242.9
Professional services	208.3	215.4	212.2	213.2	214.2	214.7	215.2	215.5	215.9	216.3	216.4	216.8	217.1	217.5	218.5
Hospital and related services	269.5	278.4	275.7	276.6	276.7	277.0	277.3	277.4	278.1	279.0	279.4	280.2	281.3	282.5	283.5
Recreation[2]	–	–	98.8	99.2	99.4	99.3	99.4	99.8	99.8	100.0	99.9	100.0	100.0	100.0	100.3
Video and audio[1,2]	–	–	98.1	99.0	99.1	98.4	98.9	99.6	99.9	100.0	99.9	99.9	100.3	100.0	100.6
Education and communication[2]	–	–	97.4	97.5	97.5	97.5	97.6	97.7	97.9	98.6	99.7	99.9	100.0	100.0	99.9
Education[2]	–	–	95.5	95.6	95.6	95.6	95.8	95.9	96.2	97.8	99.6	99.9	99.9	100.0	100.3
Educational books and supplies	226.9	238.4	234.5	235.3	235.4	235.8	235.9	237.2	237.7	240.0	241.5	242.4	242.4	242.8	245.1
Tuition, other school fees, and child care	267.1	280.4	275.1	275.3	275.3	275.4	276.1	277.0	281.9	287.5	288.2	288.3	288.5	289.2	289.2
Communication[1,2]	–	–	100.5	100.5	100.6	100.6	100.6	100.7	100.6	99.8	99.8	100.0	100.1	100.0	99.6
Information and information processing[1,2]	–	–	100.5	100.6	100.7	100.6	100.6	100.8	100.7	99.8	99.8	100.0	100.1	100.0	99.6
Telephone services[1,2]	–	–	–	–	–	–	–	–	–	–	–	–	–	100.0	99.9
Information and information processing other than telephone services[1,4]	57.2	50.1	53.5	53.2	52.4	51.4	50.8	49.9	49.1	48.2	48.5	48.9	47.6	47.4	46.2
Personal computers and peripheral equipment[1,2]	–	–	–	–	–	–	–	–	–	–	–	–	–	100.0	96.9
Other goods and services	215.4	224.8	220.0	220.7	221.4	222.7	223.1	223.1	223.5	225.7	228.1	229.4	229.9	230.1	231.3
Tobacco and smoking products	232.8	243.7	236.4	237.4	238.2	243.2	243.8	241.3	242.0	243.4	246.5	250.2	250.7	251.2	253.8
Personal care[1]	150.1	152.7	151.6	151.5	151.8	152.7	152.6	152.8	152.6	152.5	152.7	153.3	154.3	154.0	154.6
Personal care products[1]	144.3	144.2	143.6	143.3	143.6	144.5	144.1	144.2	143.7	143.5	143.7	144.5	146.1	145.3	146.1
Personal care services[1]	156.6	162.4	160.7	160.7	161.2	162.0	162.3	162.6	162.5	162.7	162.7	163.4	163.5	163.9	164.3
Miscellaneous personal services	215.6	226.1	219.4	221.8	223.8	224.1	225.0	226.5	226.9	228.6	228.4	228.9	229.5	230.0	230.9

28. Continued—Consumer Price Indexes for All Urban Consumers and for Urban Wage Earners and Clerical Workers: U.S. city average, by expenditure category and commodity or service group

[1982–84 = 100, unless otherwise indicated]

Series	Annual average		1997												1998
	1996	1997	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.
Commodity and service group:															
Commodities	139.9	141.8	141.5	141.8	142.0	142.3	142.1	141.5	141.0	141.4	142.1	142.4	142.3	141.7	141.6
Food and beverages	153.7	157.7	156.9	156.9	157.1	157.1	157.1	157.1	157.5	158.1	158.4	158.7	158.9	159.1	160.3
Commodities less food and beverages	131.5	132.2	132.1	132.6	132.9	133.2	132.9	132.0	131.0	131.3	132.2	132.5	132.2	131.2	130.5
Nondurables less food and beverages	133.0	134.6	133.8	134.6	135.0	135.8	135.4	134.2	132.9	133.8	135.5	135.8	135.3	133.5	132.0
Apparel	131.7	132.9	129.6	131.9	134.5	136.1	135.3	132.4	130.2	130.0	133.0	134.9	134.7	131.6	129.8
Nondurables less food, beverages, and apparel	138.6	140.6	141.0	141.0	140.2	140.6	140.4	140.1	139.3	140.8	141.9	141.3	140.6	139.5	138.1
Durables	129.4	128.7	129.7	129.8	129.9	129.6	129.4	129.0	128.3	127.7	127.6	127.8	127.9	128.0	128.2
Services	174.1	179.4	177.0	177.7	178.2	178.3	178.4	179.3	180.1	180.3	180.6	181.0	181.0	181.0	181.8
Rent of shelter[3]	178.0	183.4	180.6	181.6	182.3	182.4	182.4	183.1	184.1	184.7	184.4	185.0	185.0	185.3	186.5
Transporatation services	180.5	185.0	183.5	183.4	184.9	185.4	184.9	184.5	185.6	184.3	184.7	186.9	186.2	186.0	187.1
Other services	201.4	209.6	205.9	206.7	207.3	207.7	208.0	208.8	209.1	210.7	212.2	212.7	212.7	213.1	213.7
Special indexes:															
All items less food	157.5	161.1	159.6	160.2	160.6	160.8	160.7	161.0	161.1	161.3	161.8	162.2	162.1	161.8	161.9
All items less shelter	152.8	155.9	155.0	155.3	155.6	155.8	155.7	155.7	155.6	155.9	156.6	156.9	156.8	156.4	156.4
All items less medical care	152.8	156.3	155.0	155.5	155.9	156.0	155.9	156.1	156.3	156.6	157.1	157.4	157.3	157.0	157.3
Commodities less food	132.6	133.4	133.3	133.8	134.1	134.4	134.1	133.3	132.3	132.6	133.5	133.8	133.5	132.6	131.9
Nondurables less food	134.5	136.3	135.4	136.2	136.6	137.4	137.0	135.9	134.7	135.5	137.2	137.4	137.0	135.3	133.9
Nondurables less food and apparel	139.5	141.8	142.0	142.1	141.4	141.7	141.7	141.4	140.8	142.1	143.0	142.5	141.9	141.0	139.8
Nondurables	143.5	146.4	145.5	145.9	146.2	146.6	146.4	145.8	145.4	146.1	147.1	147.4	147.3	146.5	146.2
Services less rent of shelter[3]	182.5	188.1	185.9	186.4	186.7	186.8	186.9	188.1	188.8	188.7	189.5	189.8	189.8	189.5	189.9
Services less medical care services	168.7	173.9	171.5	172.2	172.7	172.8	172.8	173.8	174.6	174.8	175.1	175.5	175.4	175.4	176.1
Energy	110.1	111.5	113.3	113.1	111.2	110.0	109.9	112.3	111.4	112.5	113.9	111.5	110.7	108.4	105.9
All items less energy	163.1	167.1	165.3	165.9	166.5	166.8	166.8	166.7	167.0	167.3	167.6	168.3	168.3	168.3	169.0
All items less food and energy	165.6	169.5	167.5	168.3	169.0	169.4	169.3	169.2	169.5	169.6	170.0	170.8	170.8	170.7	171.2
Commodities less food and energy	141.3	142.3	141.5	142.2	143.0	143.5	143.3	142.2	141.5	141.2	142.0	142.7	142.8	142.1	142.0
Energy commodities	105.7	105.7	109.2	108.6	106.6	105.8	105.3	105.2	103.1	106.2	107.7	105.7	103.9	101.6	97.8
Services less energy	179.4	185.0	182.4	183.1	183.8	184.1	184.1	184.6	185.4	185.8	186.0	186.7	186.7	186.9	187.9
CONSUMER PRICE INDEX FOR URBAN WAGE EARNERS AND CLERICAL WORKERS															
All items	154.1	157.6	156.3	156.8	157.0	157.2	157.2	157.4	157.5	157.8	158.3	158.5	158.5	158.2	158.4
Food and beverages	153.2	157.2	156.4	156.4	156.5	156.5	156.6	156.6	157.0	157.6	157.8	158.1	158.3	158.5	159.6
Food	152.8	156.8	156.1	156.0	156.1	156.1	156.1	156.1	156.6	157.1	157.4	157.7	157.9	158.1	159.3
Food at home	153.5	157.2	157.1	156.8	156.7	156.6	156.6	156.5	156.9	157.6	157.7	158.0	158.1	158.2	159.9
Cereals and bakery products	173.6	177.3	176.2	176.4	176.4	176.6	176.7	177.9	177.9	178.2	177.7	178.0	177.8	178.1	178.8
Meats, poultry, fish, and eggs	144.5	148.2	149.3	148.4	147.4	147.3	147.4	147.5	148.0	148.8	148.7	148.5	149.0	148.0	148.0
Dairy and related products[1]	141.9	145.2	147.6	146.0	145.8	145.4	145.1	143.8	143.0	143.0	143.2	145.5	146.8	147.5	147.9
Fruits and vegetables	183.1	186.6	186.1	186.1	188.2	185.2	185.4	183.1	184.0	186.9	187.5	187.7	188.4	190.0	200.9
Nonalcoholic beverages and beverage materials	128.1	132.3	127.9	128.0	128.9	131.1	132.4	133.6	134.9	135.2	135.2	135.2	133.3	131.7	132.9
Other foods at home	142.6	146.8	144.4	145.0	145.1	146.4	146.6	147.2	147.9	148.0	148.2	148.4	147.0	147.1	148.1
Sugar and sweets	143.6	147.7	146.8	147.2	146.2	147.9	147.9	148.1	149.2	147.8	148.4	148.0	147.3	147.7	150.2
Fats and oils	140.3	141.4	141.9	142.3	142.2	142.1	141.7	141.3	141.1	141.2	141.7	141.4	140.2	140.0	140.4
Other foods	156.0	161.1	159.3	160.4	160.1	161.0	160.3	160.9	161.2	161.6	161.8	162.3	161.3	162.7	163.6
Other miscellaneous foods[1,2]	–	–	–	–	–	–	–	–	–	–	–	–	–	100.0	100.5
Food away from home[1]	152.6	157.0	155.4	155.7	156.0	156.2	156.2	156.6	157.1	157.4	157.8	158.2	158.6	159.0	159.3
Other food away from home[1,2]	–	–	–	–	–	–	–	–	–	–	–	–	–	100.0	100.1
Alcoholic beverages	157.9	162.1	160.4	161.1	161.5	161.7	162.2	162.1	162.2	162.5	162.6	162.8	162.8	163.1	163.6
Housing	149.6	153.4	151.8	152.4	152.5	152.4	152.6	153.6	154.1	154.2	154.4	154.4	154.5	154.4	154.8
Shelter	166.2	171.2	168.6	169.4	169.9	170.1	170.3	170.9	171.7	172.3	172.2	172.7	172.8	173.1	173.9
Rent of primary residence	161.6	166.3	164.1	164.4	164.7	165.2	165.6	166.0	166.5	167.0	167.5	167.9	168.4	168.8	169.2
Lodging away from home[2]	–	–	–	–	–	–	–	–	–	–	–	–	–	100.0	104.8
Owners' equivalent rent of primary residence[3]	161.2	165.8	163.7	164.0	164.3	164.6	164.9	165.4	166.0	166.5	167.0	167.4	167.9	168.3	168.7
Tenants' and household insurance[1,2]	–	–	–	–	–	–	–	–	–	–	–	–	–	100.0	100.4
Fuels and utilities	127.2	130.5	130.5	130.7	129.6	128.6	128.7	131.7	131.9	131.2	131.9	130.6	130.9	129.7	128.6
Fuels	114.7	117.3	118.5	118.5	116.5	114.7	114.7	119.2	119.1	118.1	119.3	116.8	117.3	115.2	113.9
Fuel oil and other fuels	99.0	99.6	111.6	109.4	105.3	101.7	100.0	97.6	94.5	93.2	93.4	95.0	96.4	97.0	96.2
Gas (piped) and electricity	121.6	124.6	124.5	124.8	122.9	121.2	121.5	127.0	127.3	126.2	127.6	124.6	124.9	122.4	121.0
Household furnishings and operations	123.2	123.9	123.4	123.7	123.9	124.0	124.3	124.2	124.1	123.7	123.9	123.9	123.7	123.6	124.1
Apparel	130.9	132.1	128.7	131.1	133.8	135.5	134.7	131.8	129.8	129.4	132.1	133.9	133.6	130.3	128.7
Men's and boys' apparel	127.4	129.9	127.0	127.2	128.8	131.1	131.7	128.8	128.0	128.8	131.2	132.4	132.7	130.7	129.4
Women's and girls' apparel	123.6	124.9	119.9	124.8	129.2	130.7	129.0	124.8	120.6	119.6	124.6	126.8	127.0	121.5	118.5
Infants' and toddlers' apparel[1]	130.8	130.1	128.5	128.1	130.7	134.9	134.9	133.8	132.0	128.4	128.3	127.7	127.1	126.5	125.3
Footwear	127.6	128.5	126.0	127.2	127.9	130.3	130.1	127.2	126.8	127.3	128.3	131.8	130.4	129.2	128.4
Transportation	142.8	143.6	144.6	144.4	144.2	144.2	143.8	143.4	142.9	143.3	143.6	143.6	143.1	142.4	141.7
Private transportation	140.7	141.3	142.4	142.4	141.9	141.8	141.6	141.1	140.4	141.1	141.4	141.1	140.8	140.1	139.3
New and used motor vehicles[2]	–	–	102.0	101.9	101.9	101.8	101.5	100.9	100.2	99.6	99.4	99.7	99.9	100.0	100.1
New vehicles	144.7	145.5	146.6	146.7	146.6	146.4	145.9	145.4	144.9	144.3	144.0	144.7	145.1	145.3	145.6
Used cars and trucks[1]	158.2	152.6	155.9	155.7	155.7	155.7	155.3	153.3	151.4	149.9	149.7	149.4	149.2	149.5	149.7

28. Continued—Consumer Price Indexes for All Urban Consumers and for Urban Wage Earners and Clerical Workers: U.S. city average, by expenditure category and commodity or service group

[1982–84 = 100, unless otherwise indicated]

Series	Annual average		1997												1998
	1996	1997	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.
Motor fuel	106.3	106.2	108.8	108.2	106.3	105.9	105.7	105.9	104.0	107.7	109.2	106.6	104.4	101.7	97.6
Gasoline (all types)	105.9	105.8	108.2	107.5	105.7	105.4	105.2	105.5	103.6	107.6	109.2	106.3	104.0	101.2	97.1
Motor vehicle parts and equipment	101.3	101.0	101.4	101.6	101.3	100.8	100.7	100.8	101.5	101.0	100.8	100.6	100.7	100.8	100.7
Motor vehicle maintenance and repair	159.3	163.7	162.0	162.1	162.5	162.9	163.2	163.7	164.0	164.2	164.5	164.9	165.1	165.7	166.0
Public transportation	179.6	184.2	183.6	180.3	185.1	186.8	185.2	184.0	186.2	181.6	183.5	187.8	183.9	182.5	184.7
Medical care	227.6	234.0	231.1	232.1	232.8	233.2	233.6	233.8	234.2	234.6	234.7	235.2	235.8	236.5	237.4
Medical care commodities	207.8	212.6	210.1	211.4	212.1	212.3	212.9	213.4	213.3	212.5	212.5	212.9	213.1	214.1	214.7
Medical care services	232.1	238.8	235.9	236.8	237.4	237.9	238.2	238.4	238.9	239.5	239.7	240.3	240.8	241.6	242.5
Professional services	209.5	216.7	231.3	214.3	215.4	216.0	216.5	216.8	217.2	217.7	217.8	218.1	218.5	218.9	219.8
Hospital and related services	266.5	274.7	271.9	272.8	273.0	273.4	273.6	273.6	274.4	275.2	275.6	276.4	277.4	278.7	279.6
Recreation[2]	–	–	98.7	99.2	99.4	99.3	99.4	99.8	99.8	100.1	100.0	100.1	100.0	100.0	100.3
Video and audio[1,2]	–	–	97.8	98.8	99.0	98.3	98.9	99.5	100.0	100.0	99.9	99.9	100.3	100.0	100.5
Education and communication[2]	–	–	97.5	97.5	97.6	97.6	97.8	97.9	98.1	98.5	99.7	99.9	100.0	100.0	100.0
Education[2]	–	–	95.3	95.5	95.5	95.5	95.7	95.9	96.2	97.6	99.6	99.8	99.9	100.0	100.3
Educational books and supplies	228.2	240.4	236.2	236.9	237.1	237.4	237.5	239.6	240.1	241.9	243.9	244.7	244.7	245.2	247.5
Tuition, other school fees, and child care	261.0	274.6	269.3	269.5	269.6	269.7	270.3	270.6	271.4	275.7	281.5	282.1	282.3	282.7	283.5
Communication[1,2]	–	–	100.3	100.3	100.5	100.5	100.5	100.7	100.6	99.7	99.8	99.9	100.1	100.0	99.7
Information and information processing[1,2]	–	–	100.3	100.4	100.5	100.5	100.5	100.7	100.7	99.7	99.8	99.9	100.1	100.0	99.6
Telephone services[1,2]	–	–	–	–	–	–	–	–	–	–	–	–	–	100.0	99.9
Information and information processing other than telephone services[1,4]	57.7	51.1	54.3	54.0	53.1	52.4	51.8	50.9	50.1	49.3	49.5	50.1	49.3	48.9	47.7
Personal computers and peripheral equipment[1,2]	–	–	–	–	–	–	–	–	–	–	–	–	–	100.0	96.6
Other goods and services	212.2	221.6	216.7	217.4	218.0	219.8	220.2	219.9	220.3	222.1	224.6	226.1	226.7	226.9	228.2
Tobacco and smoking products	232.5	243.3	236.1	237.0	237.7	242.7	243.4	240.9	241.7	243.0	246.1	249.9	250.5	250.9	253.6
Personal care[1]	150.1	152.6	151.6	151.4	151.6	152.6	152.6	152.7	152.4	152.4	152.6	153.3	154.3	153.9	154.5
Personal care products[1]	145.0	145.1	144.4	144.2	144.3	145.4	145.0	145.0	144.6	144.4	144.7	145.4	147.1	146.1	147.0
Personal care services[1]	156.6	162.5	160.8	160.8	161.2	162.1	162.4	162.7	162.6	162.8	163.0	163.5	163.7	164.1	164.5
Miscellaneous personal services	214.7	225.2	219.1	221.5	223.2	223.7	224.6	225.4	225.6	227.2	227.3	227.7	228.3	228.9	229.8
Commodity and service group:															
Commodities	139.9	141.8	141.5	141.8	142.0	142.2	142.1	141.5	141.0	141.4	142.1	142.3	142.1	141.6	141.4
Food and beverages	153.2	157.2	156.4	156.4	156.5	156.5	156.6	156.6	157.0	157.6	157.8	158.1	158.3	158.5	159.6
Commodities less food and beverages	131.8	132.4	132.4	132.9	133.1	133.4	133.2	132.3	131.3	131.6	132.5	132.7	132.3	131.3	130.5
Nondurables less food and beverages	132.8	134.5	133.7	134.5	134.8	135.6	135.3	134.1	132.9	133.9	135.5	135.7	135.1	133.1	131.5
Apparel	130.9	132.1	128.7	131.1	133.8	135.5	134.7	131.8	129.8	129.4	132.1	133.9	133.6	130.3	128.7
Nondurables less food, beverages, and apparel	138.3	140.4	140.9	140.8	139.9	140.3	140.2	139.9	139.1	140.8	141.9	141.2	140.5	139.3	137.6
Durables	129.2	128.4	129.5	129.5	129.6	129.3	129.2	128.6	128.0	127.4	127.2	127.3	127.3	127.5	127.7
Services	174.1	176.5	174.2	174.9	175.2	175.3	175.5	176.4	177.1	177.4	177.7	178.0	178.1	178.2	178.7
Rent of shelter[3]	159.9	164.7	162.3	163.0	163.5	163.7	163.9	164.5	165.3	165.8	165.8	166.2	166.3	166.6	167.4
Transportation services	178.3	182.6	181.3	181.3	182.3	182.8	182.4	182.0	182.9	182.1	182.3	184.2	184.0	183.9	184.9
Other services	198.1	206.4	202.7	203.5	204.1	204.6	205.0	205.7	205.9	207.4	209.0	209.4	209.5	209.9	210.5
Special indexes:															
All items less food	154.3	157.6	156.3	156.8	157.1	157.3	157.3	157.5	157.5	157.8	158.4	158.6	158.5	158.1	158.1
All items less shelter	151.0	154.0	153.2	153.5	153.7	153.8	153.8	153.8	153.6	153.9	154.6	154.8	154.7	154.2	154.2
All items less medical care	150.7	154.0	152.8	153.2	153.5	153.6	153.6	153.8	153.8	154.2	154.7	154.9	154.9	154.5	154.7
Commodities less food	132.8	133.6	133.5	134.0	134.2	134.6	134.4	133.5	132.5	132.9	133.7	133.9	133.5	132.5	131.8
Nondurables less food	134.3	136.2	135.3	136.0	136.4	137.1	136.9	135.8	134.7	135.6	137.1	137.3	136.7	135.0	133.5
Nondurables less food and apparel	139.3	141.6	141.8	141.8	141.1	141.4	141.4	141.1	140.4	141.9	142.9	142.4	141.7	140.7	139.2
Nondurables	143.3	146.2	145.4	145.7	146.0	146.4	146.2	145.7	145.3	146.0	147.0	147.2	147.0	146.2	145.9
Services less rent of shelter[3]	162.7	167.6	165.7	166.2	166.3	166.4	166.5	167.7	168.2	168.2	168.8	169.0	169.1	168.8	169.1
Services less medical care services	166.2	171.2	169.0	169.6	169.9	170.0	170.1	171.1	171.8	172.0	172.4	172.7	172.8	172.7	173.2
Energy	109.8	111.1	113.0	112.7	110.7	109.6	109.5	111.8	110.8	112.2	113.5	111.0	110.1	107.7	105.0
All items less energy	160.4	164.1	162.5	163.0	163.5	163.9	163.9	163.8	164.0	164.2	164.6	165.2	165.3	165.2	165.8
All items less food and energy	162.3	166.0	164.1	164.8	165.5	165.9	165.9	165.8	165.9	166.0	166.5	167.1	167.2	167.1	167.5
Commodities less food and energy	140.9	141.9	141.0	141.7	142.5	143.1	142.9	141.8	141.1	140.8	141.5	142.2	142.2	141.5	141.5
Energy commodities	105.9	105.9	109.4	108.6	106.5	105.8	105.5	105.5	103.4	106.7	108.1	105.8	104.0	101.6	97.7
Services less energy	176.8	182.2	179.8	180.4	181.0	181.3	181.4	181.9	182.6	183.0	183.3	183.9	184.0	184.3	185.1

[1] Not seasonally adjusted.

[2] Indexes on a December 1997 = 100 base.

[3] Indexes on a December 1982 = 100 base.

[4] Indexes on a December 1988 = 100 base.

– Data not available.

NOTE: Index applies to a month as a whole, not to any specific data.

29. Consumer Price Index: U.S. city average and available local area data: all items

[1982–84 = 100, unless otherwise indicated]

Area	Pricing schedule[1]	All Urban Consumers							Urban Wage Earners						
		1996	1997					1998	1996	1997					1998
		Dec.	Jan.	Sept.	Oct.	Nov.	Dec.	Jan.	Dec.	Jan.	Sept.	Oct.	Nov.	Dec.	Jan.
U.S. city average	M	158.6	159.1	161.2	161.6	161.5	161.3	161.6	155.9	156.3	158.3	158.5	158.5	158.2	158.4
Region and area size[2]															
Northeast urban	M	165.7	166.2	168.4	168.7	168.5	168.4	168.8	163.2	163.5	165.6	165.8	165.7	165.5	165.7
Size A—More than 1,500,000	M	166.2	166.8	169.2	169.5	169.3	169.1	169.5	162.6	163.1	165.4	165.5	165.5	165.2	165.4
Size B/C—50,000 to 1,500,000[3]	M	100.0	100.0	101.3	101.4	101.3	101.3	101.6	100.0	100.0	101.1	101.2	101.1	101.1	101.3
Midwest urban[4]	M	155.3	155.5	157.5	157.7	157.7	157.3	157.6	151.9	152.1	153.9	154.0	154.0	153.7	153.9
Size A—More than 1,500,000	M	155.5	156.0	158.3	158.4	158.4	158.1	158.5	151.5	151.9	153.9	153.9	153.8	153.6	153.9
Size B/C—50,000 to 1,500,000[3]	M	100.0	100.0	101.2	101.3	101.3	101.0	101.2	100.0	100.0	101.1	101.2	101.2	101.0	101.1
Size D—Nonmetropolitan (less than 50,000)	M	151.9	152.2	153.4	153.2	153.7	153.0	152.9	150.3	150.5	151.5	151.1	151.6	151.0	150.9
South urban	M	155.1	155.7	157.5	157.8	157.8	157.3	157.6	153.7	154.2	155.9	156.1	156.2	155.6	155.8
Size A—More than 1,500,000	M	154.0	154.9	156.4	156.7	156.4	156.3	156.6	152.3	153.1	154.5	154.7	154.5	154.2	154.4
Size B/C—50,000 to 1,500,000[3]	M	100.0	100.3	101.5	101.8	101.9	101.3	101.5	100.0	100.2	101.3	101.5	101.7	101.1	101.2
Size D—Nonmetropolitan (less than 50,000)	M	154.4	154.8	157.1	156.9	157.1	157.0	157.5	155.0	155.3	157.7	157.3	157.5	157.5	157.6
West urban	M	158.7	159.6	162.1	162.8	162.8	162.8	163.0	155.4	156.3	158.6	159.3	159.2	159.2	159.4
Size A—More than 1,500,000	M	158.7	159.6	162.3	163.1	162.8	163.1	163.3	153.8	154.7	157.2	157.9	157.7	157.9	158.0
Size B/C—50,000 to 1,500,000[3]	M	100.0	100.4	101.8	102.1	102.4	102.0	102.3	100.0	100.5	101.8	102.1	102.3	101.9	102.2
Size classes:															
A[5]	M	142.9	143.6	145.6	146.0	145.8	145.7	146.0	141.9	142.5	144.4	144.7	144.6	144.4	144.6
B/C[3]	M	100.0	100.2	101.4	101.7	101.7	101.4	101.6	100.0	100.1	101.3	101.5	101.5	101.2	101.3
D	M	155.5	155.9	157.4	157.6	157.8	157.5	157.7	154.9	155.3	156.6	156.7	156.9	156.7	156.7
Selected local areas[6]															
Chicago–Gary–Kenosha, IL–IN–WI	M	159.7	160.4	162.1	162.5	162.9	162.8	162.8	154.6	155.3	156.4	156.9	157.2	157.3	157.3
Los Angeles–Riverside–Orange County, CA	M	158.3	159.1	160.5	161.1	160.7	161.2	161.0	152.7	153.6	154.7	155.4	154.9	155.3	155.1
New York, NY–Northern NJ–Long Island, NY–NJ–CT–PA	M	168.5	169.1	171.7	172.3	172.0	171.9	172.1	164.7	165.1	167.7	168.1	168.0	167.7	167.7
Boston–Brockton–Nashua, MA–NH–ME–CT	1	–	167.7	167.8	–	169.4	–	171.2	–	166.6	166.2	–	167.8	–	169.3
Cleveland–Akron, OH	1	–	153.8	157.3	–	157.1	–	158.2	–	146.2	149.2	–	149.1	–	150.0
Dallas–Ft Worth, TX	1	150.0	–	–	152.8	–	152.5	152.1	150.2	–	–	152.8	–	152.7	152.2
Washington–Baltimore, DC–MD–VA–WV[7]	1	–	100.4	101.4	–	100.5	–	101.0	–	100.4	101.4	–	100.4	–	100.8
Atlanta, GA	1	–	–	–	–	–	159.4	–	–	–	–	–	–	156.8	–
Detroit–Ann Arbor–Flint, MI	1	154.3	–	–	157.9	–	157.1	–	149.4	–	–	152.4	–	151.7	–
Houston–Galveston–Brazoria, TX	1	143.6	–	–	147.3	–	145.6	–	143.0	–	–	146.3	–	144.5	–
Miami–Ft. Lauderdale, FL	2	–	158.1	158.5	–	159.5	159.3	–	–	156.0	156.1	–	157.0	156.8	–
Philadelphia–Wilmington–Atlantic City, PA–NJ–DE–MD	2	164.3	165.1	168.6	167.7	166.4	166.4	–	163.6	164.4	167.9	166.8	165.9	165.7	–
San Francisco–Oakland–San Jose, CA	2	156.0	157.0	161.6	162.5	162.6	162.6	–	153.1	154.1	158.6	159.5	159.5	159.4	–
Seattle–Tacoma–Bremerton, WA	2	–	–	–	–	–	165.0	–	–	–	–	–	–	160.6	–

[1] Foods, fuels, and several other items priced every month in all areas; most other goods and services priced as indicated:
M—Every month.
1—January, March, May, July, September, and November.
2—February, April, June, August, October, and December.

[2] Regions defined as the four Census regions.

[3] Indexes on a December 1996 = 100 base.

[4] The "North Central" region has been renamed the "Midwest" region by the Census Bureau. It is composed of the same geographic entities.

[5] Indexes on a December 1986 = 100 base.

[6] In addition, the following metropolitan areas are published semiannually and appear in tables 34 and 39 of the January and July issues of the *CPI Detailed Report*: Anchorage, AK; Cincinnati–Hamilton, OH–KY–IN; Denver–Boulder–Greeley, CO; Honolulu, HI; Kansas City, MO–KS; Milwaukee–Racine, WI; Minneapolis–St. Paul, MN–WI; Pittsburgh, PA; Portland–Salem, OR–WA; St Louis, MO–IL; San Diego, CA; Tampa–St. Petersburg–Clearwater, FL.

[7] Indexes on a November 1996 = 100 base.

– Data not available.

NOTE: Local area CPI indexes are byproducts of the national CPI program. Each local index has a smaller sample size and is, therefore, subject to substantially more sampling and other measurement error. As a result, local area indexes show greater volatility than the national index, although their long-term trends are similar. Therefore, the Bureau of Labor Statistics strongly urges users to consider adopting the national average CPI for use in their escalator clauses.

Index applies to a month as a whole, not to any specific date.

30. Annual data: Consumer Price Index, U.S. city average, all items and major groups

[1982–84 = 100]

Series	1989	1990	1991	1992	1993	1994	1995	1996	1997
Consumer Price Index for All Urban Consumers:									
All items:									
Index	124.0	130.7	136.2	140.3	144.5	148.2	152.4	156.9	160.5
Percent change	4.8	5.4	4.2	3.0	3.0	2.6	2.8	3.0	2.3
Food and beverages:									
Index	124.9	132.1	136.8	138.7	141.6	144.9	148.9	153.7	157.7
Percent change	5.7	5.8	3.6	1.4	2.1	2.3	2.8	3.2	2.6
Housing:									
Index	123.0	128.5	133.6	137.5	141.2	144.8	148.5	152.8	156.8
Percent change	3.8	4.5	4.0	2.9	2.7	2.5	2.6	2.9	2.6
Apparel:									
Index	118.6	124.1	128.7	131.9	133.7	133.4	132.0	131.7	132.9
Percent change	2.8	4.6	3.7	2.5	1.4	–.2	–1.0	–0.2	.9
Transportation:									
Index	114.1	120.5	123.8	126.5	130.4	134.3	139.1	143.0	144.3
Percent change	5.0	5.6	2.7	2.2	3.1	3.0	3.6	2.8	0.9
Medical care:									
Index	149.3	162.8	177.0	190.1	201.4	211.0	220.5	228.2	234.6
Percent change	7.7	9.0	8.7	7.4	5.9	4.8	4.5	3.5	2.8
Other goods and services:									
Index	147.7	159.0	171.6	183.3	192.9	198.5	206.9	215.4	224.8
Percent change	7.8	7.7	7.9	6.8	5.2	2.9	4.2	4.1	4.4
Consumer Price Index for Urban Wage Earners and Clerical Workers:									
All items:									
Index	122.6	129.0	134.3	138.2	142.1	145.6	149.8	154.1	157.6
Percent change	4.8	5.2	4.1	2.9	2.8	2.5	2.9	2.9	2.3

31. Producer Price Indexes, by stage of processing

[1982 = 100]

Grouping	Annual average		1997												1998
	1996	1997[p]	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.
Finished goods	131.3	131.8	132.6	132.2	132.1	131.6	131.6	131.6	131.3	131.7	131.8	132.3	131.8	131.1	130.2
Finished consumer goods	129.5	130.2	131.0	130.6	130.4	129.8	130.0	130.0	129.7	130.3	130.5	130.7	130.1	129.4	128.2
Finished consumer foods	133.6	134.5	134.1	133.8	135.2	134.3	135.2	134.0	134.0	134.9	134.7	135.1	134.5	134.2	132.8
Finished consumer goods excluding foods	127.6	128.2	129.5	129.0	128.2	127.7	127.6	128.1	127.6	128.1	128.6	128.7	128.1	127.2	126.0
Nondurable goods less food	123.3	124.3	125.7	124.9	123.8	123.2	123.5	124.4	124.1	124.8	125.8	124.6	123.8	122.8	121.3
Durable goods	134.2	133.8	134.9	135.0	135.0	134.5	133.6	133.4	132.4	132.3	131.4	134.7	134.4	133.9	133.6
Capital equipment	138.3	138.3	139.0	138.9	138.8	138.6	138.1	138.1	137.8	137.7	137.2	138.5	138.4	138.0	138.0
Intermediate materials, supplies, and components	125.7	125.6	126.3	126.1	125.6	125.3	125.4	125.8	125.5	125.8	126.0	125.5	125.6	125.0	124.2
Materials and components for manufacturing	128.6	128.3	128.4	128.4	128.6	128.4	128.4	128.3	128.2	128.3	128.3	128.0	128.4	128.0	127.5
Materials for food manufacturing	125.3	123.2	122.9	122.9	124.1	123.8	123.9	122.7	122.3	122.9	123.1	122.4	124.4	123.0	119.7
Materials for nondurable manufacturing	130.5	129.7	130.1	129.9	129.4	129.0	129.1	129.0	129.3	129.7	129.8	129.9	130.5	130.3	130.1
Materials for durable manufacturing	131.3	132.8	131.9	132.6	133.4	133.4	133.4	133.7	133.2	133.2	133.0	132.3	132.2	131.4	130.5
Components for manufacturing	126.9	126.4	126.8	126.8	126.7	126.6	126.5	126.4	126.4	126.2	126.2	126.0	126.0	125.9	126.0
Materials and components for construction	143.6	146.5	145.0	145.7	146.2	146.8	147.2	147.0	147.2	147.1	146.8	146.4	146.6	146.6	146.4
Processed fuels and lubricants	90.0	89.3	93.4	92.1	88.7	87.0	87.2	89.8	88.9	90.0	91.0	89.1	88.2	86.2	83.3
Containers	141.1	135.9	137.8	136.9	136.0	135.1	134.6	134.2	134.1	133.4	135.4	136.4	137.3	139.6	140.7
Supplies	135.9	135.9	135.5	135.5	135.8	136.0	136.2	136.0	135.9	135.8	136.2	135.8	136.0	135.9	135.5
Crude materials for further processing	113.8	110.9	126.3	116.1	107.6	107.9	110.4	107.1	107.1	107.5	108.5	112.7	113.8	107.4	102.7
Foodstuffs and feedstuffs	121.5	112.2	112.2	111.0	114.1	116.7	117.4	111.3	112.0	111.6	110.6	110.1	110.2	108.8	105.4
Crude nonfood materials	104.5	106.0	131.0	115.2	99.4	98.1	101.8	100.5	99.9	100.9	103.2	110.3	112.0	102.5	97.1
Special groupings:															
Finished goods, excluding foods	130.5	130.9	132.1	131.7	131.1	130.7	130.5	130.9	130.4	130.7	130.9	131.3	130.9	130.2	129.3
Finished energy goods	83.2	83.4	86.5	85.2	83.0	81.8	82.2	83.6	83.1	84.2	85.3	83.2	82.0	80.2	77.4
Finished goods less energy	139.6	140.2	140.3	140.2	140.7	140.3	140.3	139.9	139.7	139.9	139.7	140.9	140.6	140.3	139.9
Finished consumer goods less energy	140.1	141.0	140.8	140.7	141.4	141.0	141.1	140.6	140.3	140.7	140.6	141.8	141.4	141.1	140.6
Finished goods less food and energy	142.0	142.5	142.8	142.7	142.8	142.7	142.3	142.2	141.9	141.8	141.6	143.0	142.9	142.7	142.7
Finished consumer goods less food and energy	144.3	145.1	145.1	145.1	145.3	145.2	144.9	144.8	144.4	144.4	144.4	146.0	145.7	145.6	145.6
Consumer nondurable goods less food and energy	151.4	153.2	152.4	152.3	152.7	153.0	153.0	153.1	153.2	153.3	154.2	154.3	153.9	154.1	154.4
Intermediate materials less foods and feeds	125.6	125.7	126.4	126.2	125.6	125.2	125.3	125.7	125.6	125.8	126.1	125.6	125.6	125.2	124.5
Intermediate foods and feeds	128.1	125.4	124.6	124.8	127.2	127.5	128.3	126.4	124.6	124.6	126.0	122.6	124.3	123.3	118.8
Intermediate energy goods	89.8	89.0	93.2	91.8	88.5	86.7	87.0	89.5	88.6	89.7	90.7	88.8	88.0	85.9	83.0
Intermediate goods less energy	133.6	133.7	133.5	133.6	133.8	133.8	133.9	133.7	133.7	133.7	133.8	133.5	133.8	133.7	133.3
Intermediate materials less foods and energy	134.0	134.2	134.1	134.2	134.2	134.2	134.2	134.2	134.2	134.2	134.3	134.2	134.4	134.3	134.3
Crude energy materials	85.0	86.8	119.4	98.0	77.1	76.4	80.8	79.2	79.1	79.7	83.2	92.8	95.4	83.4	77.3
Crude materials less energy	130.0	123.4	123.5	123.3	125.7	126.7	127.5	123.1	123.1	123.3	122.2	121.5	121.4	120.0	116.8
Crude nonfood materials less energy	155.8	156.5	156.6	158.9	159.6	156.4	157.8	157.4	155.6	157.5	156.0	155.0	154.1	152.7	150.1

32. Producer Price Indexes for the net output of major industry groups

[December 1984 = 100, unless otherwise indicated]

SIC	Industry	Annual average		1997												1998
		1996	1997[p]	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.
–	**Total mining industries**	84.4	85.7	111.3	95.1	78.8	77.6	80.8	79.9	79.5	80.2	82.9	90.2	91.9	82.8	77.9
10	Metal mining	92.1	85.8	89.9	88.5	90.9	87.7	89.7	89.4	85.7	86.4	84.0	83.2	78.8	74.1	73.1
12	Coal mining (12/85 = 100)	91.4	92.1	92.9	91.3	92.8	95.0	91.7	92.6	91.5	91.6	91.9	91.3	91.0	92.2	92.1
13	Oil and gas extraction (12/85 = 100)	84.8	87.1	121.1	99.6	77.3	75.5	80.2	78.9	78.8	79.7	83.5	93.4	96.2	84.1	77.6
14	Mining and quarrying of nonmetallic minerals, except fuels	127.1	128.7	127.6	127.7	127.7	128.1	128.3	128.9	129.2	129.2	129.3	129.6	129.9	129.7	130.3
–	**Total manufacturing industries**	127.1	127.5	128.1	127.9	127.8	127.7	127.6	127.2	126.9	127.4	127.3	127.6	127.5	127.0	126.3
20	Food and kindred products	127.1	127.9	127.4	127.1	128.1	128.3	128.9	128.3	128.0	128.6	127.9	127.5	127.5	127.1	125.7
21	Tobacco manufactures	199.1	210.6	201.4	201.2	203.3	208.4	209.2	209.6	209.4	209.4	219.4	219.4	218.9	219.6	219.3
22	Textile mill products	118.2	118.7	118.6	118.8	118.8	118.2	118.5	118.6	118.8	118.8	118.9	119.1	118.7	118.7	118.7
23	Apparel and other finished products made from fabrics and similar materials	122.3	123.2	122.9	122.9	123.2	122.9	123.3	123.4	123.4	123.5	123.7	123.4	123.3	123.5	124.1
24	Lumber and wood products, except furniture	153.5	158.9	156.4	158.2	159.3	159.9	160.7	159.8	160.1	159.6	158.9	157.3	158.3	158.4	157.5
25	Furniture and fixtures	136.2	138.2	137.5	137.6	137.7	138.0	138.2	138.2	138.5	138.3	138.6	138.6	138.8	138.8	139.2
26	Paper and allied products	138.6	133.5	134.5	133.5	132.5	131.5	131.5	131.7	132.0	132.8	134.1	134.6	135.9	137.2	137.7
27	Printing, publishing, and allied industries	165.6	169.0	168.0	168.1	168.0	168.5	168.2	168.4	168.7	168.9	169.2	170.7	170.6	171.2	172.5
28	Chemicals and allied products	145.8	147.1	146.8	146.8	146.9	147.0	147.0	147.0	147.1	147.2	147.1	147.3	147.3	147.1	147.6
29	Petroleum refining and related products	87.4	85.5	92.9	91.2	87.3	85.8	85.5	83.6	81.3	85.3	86.1	84.8	83.7	79.1	73.7
30	Rubber and miscellaneous plastics products	123.1	122.8	122.9	122.8	122.4	122.8	122.9	122.9	123.0	123.1	122.9	122.7	122.8	122.7	122.6
31	Leather and leather products	134.7	137.2	136.8	137.3	137.2	137.4	136.9	136.2	136.9	136.9	137.0	137.5	137.8	137.6	137.7
32	Stone, clay, glass, and concrete products	125.8	127.4	126.8	126.9	127.1	127.5	127.6	127.4	127.4	127.5	127.5	127.8	127.9	127.8	127.9
33	Primary metal industries	123.7	124.7	123.6	124.0	124.8	125.0	125.0	125.4	125.2	125.2	125.2	124.8	124.5	123.8	123.4
34	Fabricated metal products, except machinery and transportation transportation equipment	126.2	127.6	126.8	127.0	127.1	127.2	127.4	127.5	127.7	127.9	128.0	128.1	128.1	128.1	128.3
35	Machinery, except electrical	119.2	118.5	119.1	119.0	119.1	119.1	118.5	118.3	118.4	118.3	118.2	118.1	118.1	118.1	118.2
36	Electrical and electronic machinery, equipment, and supplies	113.2	111.6	112.5	112.2	112.2	112.0	111.8	111.8	111.7	111.1	111.1	110.8	111.1	110.8	110.7
37	Transportation	134.2	134.2	135.4	135.4	135.3	134.8	133.9	133.8	132.8	132.8	131.8	135.0	134.7	134.1	133.8
38	Measuring and controlling instruments; photographic, medical, and optical goods; watches and clocks	125.0	125.7	125.5	125.4	125.5	125.7	125.7	125.3	125.7	125.8	125.8	125.7	125.9	125.9	126.0
39	Miscellaneous manufacturing industries (12/85 = 100)	127.8	129.1	128.6	128.7	128.9	129.1	129.1	129.1	129.0	129.1	129.2	129.4	129.3	129.3	129.5
	Service industries:															
42	Motor freight transportation and warehousing (06/93 = 100)	106.3	108.9	108.0	108.5	108.6	108.8	108.8	109.0	109.1	109.3	109.4	109.3	109.0	109.1	110.4
43	U.S. Postal Service (06/89 = 100)	132.3	132.3	132.3	132.3	132.3	132.3	132.3	132.3	132.3	132.3	132.3	132.3	132.3	132.3	132.3
44	Water transportation (12/92 = 100)	103.7	104.1	104.1	104.2	104.1	104.2	104.3	104.8	104.4	104.7	103.8	104.6	103.2	103.8	102.9
45	Transportation by air (12/92 = 100)	121.1	125.5	128.8	128.9	124.6	125.1	125.1	126.2	126.5	125.4	122.5	123.7	124.0	124.2	122.5
46	Pipelines, except natural gas (12/92 = 100)	104.6	98.8	98.8	98.8	98.8	98.8	98.9	98.9	98.7	98.7	98.7	98.7	98.7	98.7	99.3

33. Annual data: Producer Price Indexes, by stage of processing

[1982 = 100]

Index	1989	1990	1991	1992	1993	1994	1995	1996	1997[p]
Finished goods									
Total	113.6	119.2	121.7	123.2	124.7	125.5	127.9	131.3	131.8
Foods	118.7	124.4	124.1	123.3	125.7	126.8	129.0	133.6	134.5
Energy	65.7	75.0	78.1	77.8	78.0	77.0	78.1	83.2	83.4
Other	122.1	126.6	131.1	134.2	135.8	137.1	140.0	142.0	142.5
Intermediate materials, supplies, and components									
Total	112.0	114.5	114.4	114.7	116.2	118.5	124.9	125.7	125.6
Foods	112.7	117.9	115.3	113.9	115.6	118.5	119.5	125.3	123.2
Energy	76.1	85.5	85.1	84.3	84.6	83.0	84.1	89.8	89.0
Other	120.2	120.9	121.4	122.0	123.8	127.1	135.2	134.0	134.2
Crude materials for further processing									
Total	103.1	108.9	101.2	100.4	102.4	101.8	102.7	113.8	110.9
Foods	111.2	113.1	105.5	105.1	108.4	106.5	105.8	121.5	112.2
Energy	75.9	85.9	80.4	78.8	76.7	72.1	69.4	85.0	86.8
Other	95.8	107.3	97.5	94.2	94.1	97.0	105.8	105.7	103.5

34. U.S. export price indexes by Standard International Trade Classification

[1995 = 100, unless otherwise indicated]

SITC Rev. 3	Industry	1997												1998
		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.
0	**Food and live animals**	100.7	102.3	103.4	103.1	101.2	98.5	97.8	99.7	99.5	98.5	97.6	96.7	94.9
01	Meat and meat preparations	95.4	94.5	96.4	96.7	95.7	95.3	95.7	96.2	95.2	95.2	96.1	94.6	91.3
04	Cereals and cereal preparations	98.7	102.8	104.9	104.5	99.7	92.3	89.9	93.2	95.0	93.5	94.9	94.4	88.9
05	Vegetables, fruit, and nuts, prepared fresh or dry	101.4	101.9	101.2	100.1	100.7	101.6	104.3	103.3	97.6	98.2	93.4	92.0	99.8
2	**Crude materials, inedible, except fuels**	90.0	92.2	93.2	92.6	93.0	93.4	93.6	92.7	91.6	88.7	88.9	87.8	84.8
21	Hides, skins, and furskins, raw	113.4	114.7	115.6	113.8	110.0	100.8	96.0	98.3	100.1	101.6	103.6	102.6	80.9
22	Oilseeds and oleaginous fruits	120.1	126.7	133.1	134.0	136.1	134.6	128.6	120.5	120.2	108.3	118.2	116.5	110.8
24	Cork and wood	97.9	98.3	96.0	94.2	94.2	93.2	92.8	92.4	90.9	88.6	85.8	85.7	86.0
25	Pulp and waste paper	55.9	59.4	58.6	58.9	60.5	65.9	69.1	71.4	68.2	69.4	68.3	66.8	64.2
26	Textile fibers and their waste	83.3	83.2	85.2	83.5	83.3	83.4	84.2	84.4	83.9	83.4	81.2	80.0	78.2
27	Crude fertilizers and crude minerals	97.8	97.6	96.9	96.9	97.3	97.8	97.9	97.9	97.9	97.9	97.8	97.4	97.5
28	Metalliferous ores and metal scrap	86.9	88.8	89.7	89.4	89.6	91.7	95.7	96.3	94.4	90.0	85.9	83.9	82.1
3	**Mineral fuels, lubricants, and related products**	116.5	112.3	111.4	110.7	110.7	110.9	110.9	111.2	111.8	112.6	112.0	112.8	109.5
32	Coal, coke, and briquettes	102.6	102.2	102.2	102.5	102.4	102.0	101.6	101.6	101.9	102.2	101.8	101.3	101.0
33	Petroleum, petroleum products, and related materials	127.0	121.4	119.5	119.9	120.0	119.4	120.9	121.3	121.8	121.3	120.1	118.9	116.1
4	**Animal and vegetable oils, fats, and waxes**	96.1	97.6	96.5	93.4	93.6	94.7	93.3	93.3	94.9	97.9	106.8	106.5	104.5
5	**Chemicals and related products, n.e.s.**	96.2	96.4	96.8	96.6	96.7	96.5	96.4	95.5	95.5	95.4	95.2	94.9	94.8
54	Medicinal and pharmaceutical products	101.4	101.2	100.9	101.6	101.5	101.5	101.1	101.1	101.2	100.8	100.9	100.9	101.9
55	Essential oils; polishing and cleaning preparations	101.4	102.5	102.2	102.2	102.8	102.9	103.1	102.6	103.7	103.6	102.1	101.9	101.3
57	Plastics in primary forms (12/92 = 100)	94.8	95.8	97.8	97.8	97.6	97.1	95.9	94.0	93.7	93.9	93.6	93.1	92.9
58	Plastics in nonprimary forms (12/92 = 100)	99.1	98.4	98.7	98.5	99.3	99.1	99.0	99.0	98.9	98.7	98.5	98.7	100.1
59	Chemical materials and products, n.e.s.	103.0	103.1	103.5	104.0	104.2	103.9	103.9	104.0	103.6	103.4	103.0	101.9	101.9
6	**Manufactured goods classified chiefly by materials**	97.1	97.5	97.5	97.8	97.7	98.2	98.5	98.6	98.7	98.7	98.9	98.6	98.3
62	Rubber manufactures, n.e.s.	102.9	102.6	102.7	103.0	103.1	103.2	103.1	102.2	101.9	102.2	102.1	102.0	101.8
64	Paper, paperboard, and articles of paper, pulp, and paperboard	83.6	83.2	83.1	82.3	82.9	83.5	84.4	85.3	85.0	85.3	85.2	85.1	84.7
66	Nonmetallic mineral manufactures, n.e.s.	104.0	104.1	104.0	104.0	104.1	104.3	104.5	104.6	106.1	106.1	106.3	107.1	106.7
68	Nonferrous metals	89.9	92.4	91.7	92.0	91.7	93.4	92.6	93.3	93.2	91.9	93.4	91.0	89.4
7	**Machinery and transport equipment**	100.6	100.5	100.5	100.6	100.4	100.6	100.5	100.6	100.1	100.0	100.1	99.8	99.7
71	Power generating machinery and equipment	105.1	105.2	105.6	105.9	106.0	106.0	105.9	106.2	106.2	106.2	106.3	106.2	106.8
72	Machinery specialized for particular industries	103.7	103.8	103.7	103.8	104.3	104.2	104.1	104.4	104.5	104.5	104.5	104.9	104.6
74	General industrial machines and parts, n.e.s., and machine parts	103.4	103.8	104.1	104.6	104.7	105.2	105.0	105.3	105.2	105.4	105.4	105.4	105.6
75	Computer equipment and office machines	87.7	86.9	86.7	86.3	85.1	84.7	84.0	84.0	83.7	83.0	82.7	81.6	80.8
76	Telecommunications and sound recording and reproducing apparatus and equipment	100.8	100.2	99.9	99.9	99.6	99.6	99.7	99.7	99.2	99.5	99.4	98.7	98.7
77	Electrical machinery and equipment	97.0	96.9	96.7	96.9	96.8	96.5	96.5	96.7	95.1	94.8	94.9	94.5	94.2
78	Road vehicles	101.6	101.5	101.8	101.9	101.7	101.8	102.0	101.9	101.7	101.8	101.9	102.0	102.0
87	**Professional, scientific, and controlling instruments and apparatus**	103.4	103.7	103.8	103.1	103.3	103.4	103.5	103.5	103.4	103.3	103.3	103.5	103.5

35. U.S. import price indexes by Standard International Trade Classification

[1995 = 100, unless otherwise indicated]

SITC Rev. 3	Industry	1997												1998
		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.
0	**Food and live animals**	94.6	97.2	101.8	99.5	102.1	103.7	100.5	100.9	101.3	100.4	99.4	99.6	99.2
01	Meat and meat preparations	97.7	97.9	103.5	104.7	103.5	101.9	101.9	104.2	103.9	102.7	102.7	104.2	101.3
03	Fish and crustaceans, mollusks, and other aquatic invertebrates	98.4	100.1	99.7	100.4	102.1	103.6	104.4	104.6	104.5	107.4	107.3	105.6	105.4
05	Vegetables, fruit, and nuts, prepared fresh or dry	101.6	104.1	111.1	101.5	101.0	101.7	101.2	103.2	103.4	103.1	103.8	102.5	102.9
07	Coffee, tea, cocoa, spices, and manufactures thereof	77.7	85.8	98.6	98.1	107.8	118.4	99.6	97.5	100.0	92.1	86.2	92.1	93.9
1	**Beverages and tobacco**	105.6	106.7	106.9	107.2	107.0	107.5	107.7	107.7	107.8	107.9	108.4	108.6	109.0
11	Beverages	102.9	103.0	103.3	103.6	103.5	104.0	104.2	104.2	104.3	104.4	105.1	105.2	105.4
2	**Crude materials, inedible, except fuels**	97.0	102.1	99.0	97.6	99.8	97.4	97.3	96.8	96.6	94.8	94.0	93.5	91.7
23	Crude rubber (including synthetic and reclaimed)	87.4	88.1	88.3	84.8	82.1	83.9	77.7	77.2	74.5	72.4	71.2	69.1	65.3
24	Cork and wood	121.4	125.4	126.2	124.9	126.9	122.5	123.3	120.9	121.2	113.1	114.0	113.1	109.7
25	Pulp and waste paper	65.7	65.7	64.9	63.8	64.4	65.8	66.5	67.9	68.2	69.0	69.2	68.7	68.3
28	Metalliferous ores and metal scrap	99.8	102.6	103.0	106.0	105.6	105.8	104.6	104.7	104.5	103.7	102.5	102.3	100.3
29	Crude animal and vegetable materials, n.e.s.	105.3	148.2	105.2	94.3	118.1	97.3	102.1	101.8	103.1	113.2	104.8	107.0	108.6
3	**Mineral fuels, lubricants, and related products**	138.9	128.0	113.9	105.3	106.6	104.6	104.4	106.2	107.0	113.1	111.8	103.5	94.5
33	Petroleum, petroleum products, and related materials	134.6	123.8	113.1	104.8	106.4	104.0	103.0	105.1	105.5	111.5	107.8	100.3	90.8
34	Gas, natural and manufactured	184.4	170.7	125.9	113.7	112.0	113.3	119.8	119.7	123.7	132.0	149.7	133.4	127.6
5	**Chemicals and related products, n.e.s.**	98.6	97.9	97.8	96.6	96.5	96.4	96.2	96.4	96.2	95.6	95.2	95.2	94.1
52	Inorganic chemicals	103.2	102.7	101.5	101.1	100.8	99.0	97.9	98.6	99.7	99.7	99.0	97.3	93.0
53	Dying, tanning, and coloring materials	99.4	97.4	96.9	97.1	97.1	97.9	97.7	95.4	94.0	94.2	96.3	97.0	95.3
54	Medicinal and pharmaceutical products	97.8	96.6	96.0	96.0	95.4	96.3	96.3	96.2	95.7	96.2	96.2	96.8	96.4
55	Essential oils; polishing and cleaning preparations	99.4	98.7	98.2	98.8	98.7	97.0	96.9	97.8	96.9	97.4	96.6	97.5	96.2
57	Plastics in primary forms (12/92 = 100)	94.5	92.4	91.6	89.6	90.9	91.6	91.7	91.9	92.6	92.7	91.6	92.0	92.4
58	Plastics in nonprimary forms (12/92 = 100)	85.7	85.7	86.1	86.2	85.8	88.6	88.7	87.4	86.9	85.9	82.9	82.8	82.4
59	Chemical materials and products, n.e.s.	105.5	104.7	104.6	104.2	104.2	103.5	103.2	103.3	103.2	102.8	102.8	103.1	102.8
6	**Manufactured goods classified chiefly by materials**	95.3	95.4	96.0	95.9	96.4	96.8	96.6	96.5	96.8	96.7	96.6	96.0	95.1
62	Rubber manufactures, n.e.s.	98.4	97.9	97.4	97.5	97.4	97.6	96.7	95.8	95.1	95.3	95.4	95.5	95.2
64	Paper, paperboard, and articles of paper, pulp, and paperboard	84.2	83.8	85.0	85.6	87.9	87.5	87.6	88.0	88.8	88.9	89.7	88.5	86.7
66	Nonmetallic mineral manufactures, n.e.s.	103.5	103.6	103.2	102.8	103.2	102.6	103.0	102.5	102.1	102.2	102.2	101.7	101.3
68	Nonferrous metals	86.1	87.7	91.1	90.6	91.8	95.1	94.0	94.6	96.9	95.3	93.4	92.1	90.5
69	Manufactures of metals, n.e.s.	100.3	99.9	99.5	99.0	98.9	99.0	98.8	98.3	98.1	98.5	98.3	98.5	97.9
7	**Machinery and transport equipment**	97.1	96.8	96.5	96.0	95.5	95.7	95.4	95.0	94.8	94.5	94.3	94.0	93.6
72	Machinery specialized for particular industries	101.1	100.6	99.7	99.2	98.9	99.3	99.3	98.6	98.4	98.6	99.0	99.1	99.8
74	General industrial machines and parts, n.e.s., and machine parts	100.6	99.6	98.5	98.1	97.9	98.3	98.2	97.6	97.2	97.4	97.3	97.3	97.0
75	Computer equipment and office machines	86.6	85.6	84.4	83.2	81.9	81.2	80.2	78.9	78.2	77.1	76.7	76.8	75.3
76	Telecommunications and sound recording and reproducing apparatus and equipment	94.7	94.7	94.4	93.7	93.1	93.4	93.3	92.9	92.6	92.3	91.9	91.7	91.4
77	Electrical machinery and equipment	90.3	90.2	90.8	90.1	89.8	90.2	89.7	89.6	89.2	88.6	87.7	86.5	86.1
78	Road vehicles	100.7	100.6	100.8	100.6	100.4	100.8	100.9	101.1	101.3	101.6	101.6	101.5	101.4
85	Footwear	101.4	101.7	101.0	101.0	100.9	101.1	101.2	101.1	100.8	101.0	101.0	101.2	101.2
88	Photographic apparatus, equipment, and supplies, and optical goods, n.e.s.	96.5	96.0	95.3	95.6	94.3	94.4	95.1	94.4	93.6	93.4	92.6	93.1	92.3

36. U.S. export price indexes by end-use category

[1995 = 100]

Category	1997												1998
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.
ALL COMMODITIES	99.4	99.6	99.7	99.7	99.4	99.3	99.3	99.3	99.0	98.6	98.6	98.2	97.5
Foods, feeds, and beverages	102.4	104.3	106.1	105.8	104.6	102.3	101.2	101.8	101.8	99.8	100.2	99.3	96.9
Agricultural foods, feeds, and beverages	103.1	105.6	107.6	107.4	106.3	103.8	102.4	102.5	102.2	100.1	100.7	100.0	97.6
Nonagricultural (fish, beverages) food products	96.2	91.4	90.7	89.4	88.0	87.6	89.0	96.2	98.5	98.0	95.7	94.1	90.9
Industrial supplies and materials	95.2	95.3	95.3	95.3	95.2	95.5	95.8	95.4	95.1	94.8	94.5	93.7	92.5
Agricultural industrial supplies and materials	95.9	95.8	95.9	94.1	92.6	91.6	92.2	92.3	93.0	93.1	94.0	92.7	88.3
Fuels and lubricants	114.7	111.4	110.7	110.2	110.0	110.0	110.1	110.4	110.9	111.3	110.7	110.2	107.2
Nonagricultural supplies and materials, excluding fuel and building materials	91.8	92.3	92.5	92.8	92.8	93.3	93.6	93.2	92.8	92.4	92.3	91.4	90.6
Selected building materials	98.2	98.6	97.1	95.5	95.4	94.8	94.7	93.8	92.8	91.2	89.3	89.3	89.3
Capital goods	100.6	100.4	100.4	100.3	100.1	100.2	100.0	100.1	99.5	99.3	99.3	99.0	98.8
Electric and electrical generating equipment	100.6	100.3	100.5	100.7	100.6	101.1	101.2	102.2	101.8	101.9	102.2	102.3	101.9
Nonelectrical machinery	98.5	98.4	98.3	98.2	97.9	97.7	97.5	97.5	96.7	96.5	96.4	96.0	95.8
Automotive vehicles, parts, and engines	101.7	101.7	101.9	102.2	102.1	102.1	102.3	102.3	102.1	102.2	102.3	102.3	102.3
Consumer goods, excluding automotive	101.9	102.0	101.7	101.8	101.9	102.0	102.2	102.2	102.6	102.6	102.6	102.7	102.5
Nondurables, manufactured	101.6	101.6	101.4	101.1	101.2	101.5	101.7	101.7	102.3	102.1	102.0	102.1	102.1
Durables, manufactured	101.6	101.7	101.4	102.0	102.1	102.0	102.0	102.1	101.9	102.2	102.1	102.0	101.7
Agricultural commodities	101.4	103.5	105.1	104.7	103.4	101.3	100.2	100.3	100.2	98.4	99.1	98.3	95.6
Nonagricultural commodities	99.1	99.1	99.0	99.0	99.0	99.1	99.1	99.1	98.8	98.6	98.5	98.1	97.7

37. U.S. import price indexes by end-use category

[1995 = 100]

Category	1997												1998
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.
ALL COMMODITIES	101.6	100.7	99.4	98.3	98.3	98.2	98.0	97.9	97.8	98.0	97.6	96.6	95.4
Foods, feeds, and beverages	96.7	98.5	101.4	99.6	100.8	101.9	99.4	99.2	99.6	98.8	97.9	98.1	97.6
Agricultural foods, feeds, and beverages	95.7	97.8	101.8	99.0	100.3	101.3	97.5	97.3	97.9	96.3	95.2	95.7	95.2
Nonagricultural (fish, beverages) food products	99.0	100.1	100.1	100.9	101.8	103.1	104.2	104.1	104.1	105.2	105.2	104.1	104.0
Industrial supplies and materials	111.0	107.7	103.4	100.4	101.0	100.4	100.1	100.8	101.1	102.5	101.8	98.7	94.8
Fuels and lubricants	138.8	128.1	114.3	105.8	106.8	104.9	104.6	106.6	107.2	113.2	111.5	103.5	94.9
Petroleum and petroleum products	135.5	124.5	113.7	105.3	106.6	104.5	103.1	105.5	105.7	111.6	107.7	100.5	91.5
Paper and paper base stocks	79.5	79.0	79.8	80.1	82.0	81.9	82.1	82.7	83.4	83.7	84.4	83.3	81.5
Materials associated with nondurable supplies and materials	97.0	96.8	96.9	96.1	96.3	95.8	95.5	95.6	95.4	94.6	94.3	93.8	92.7
Selected building materials	111.0	114.0	114.7	113.7	114.8	112.3	112.8	111.7	111.6	107.6	108.3	107.6	105.0
Unfinished metals associated with durable goods	92.9	93.6	95.5	95.8	96.2	98.0	97.4	97.3	98.5	97.4	96.4	95.5	93.9
Nonmetals associated with durable goods	97.9	97.3	96.7	96.0	95.8	95.7	95.6	95.1	94.1	94.2	94.2	94.2	93.8
Capital goods	94.4	93.9	93.5	92.6	92.0	92.1	91.7	91.0	90.5	89.8	89.4	88.9	88.2
Electric and electrical generating equipment	98.8	98.4	97.6	97.6	97.3	97.1	96.9	97.1	96.8	96.8	96.6	96.0	95.5
Nonelectrical machinery	92.7	92.1	91.7	90.7	90.0	90.1	89.7	88.9	88.3	87.4	87.0	86.5	85.6
Automotive vehicles, parts, and engines	100.7	100.7	100.8	100.6	100.3	100.8	100.9	101.0	101.2	101.4	101.4	101.3	101.3
Consumer goods, excluding automotive	100.0	100.2	99.6	99.6	99.7	99.5	99.6	99.4	99.2	99.3	99.1	99.2	99.0
Nondurables, manufactured	100.6	100.6	100.5	100.8	101.0	101.0	100.9	100.8	100.8	101.1	100.8	101.0	101.0
Durables, manufactured	99.3	99.0	98.5	98.4	98.0	98.1	98.1	97.8	97.4	97.3	97.1	97.3	97.0
Nonmanufactured consumer goods	101.4	108.2	100.4	98.9	102.8	99.1	99.8	99.8	99.9	101.4	100.1	99.4	98.9

38. U.S. international price indexes for selected categories of services

[1990 = 100, unless otherwise indicated]

Category	1995	1996				1997			
	Dec.	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.
Air freight (inbound) (9/90 = 100)	98.7	95.9	95.1	95.6	95.0	89.5	89.9	88.5	86.5
Air freight (outbound) (9/92 = 100)	99.7	99.1	99.4	98.9	99.2	99.8	99.2	99.6	98.0
Air passenger fares (U.S. carriers)	96.1	98.3	104.3	107.3	101.6	97.1	112.1	109.2	99.5
Air passenger fares (foreign carriers)	96.9	96.3	103.0	105.5	100.7	98.5	106.1	104.6	99.7
Ocean liner freight (inbound)	101.1	101.5	99.6	98.0	98.4	97.6	96.8	94.9	92.9

39. Indexes of productivity, hourly compensation, and unit costs, quarterly data seasonally adjusted

[1992 = 100]

Item	Quarterly indexes												
	1994	1995				1996				1997			
	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
Business													
Output per hour of all persons	100.7	100.1	100.3	100.6	101.2	102.0	102.8	102.6	103.1	103.5	104.1	105.0	105.5
Compensation per hour	105.0	105.7	106.5	107.3	108.3	109.3	110.8	111.8	112.7	113.8	114.7	115.9	117.5
Real compensation per hour	98.3	98.2	98.2	98.4	98.8	98.9	99.4	99.6	99.6	100.0	100.5	101.1	101.9
Unit labor costs	104.3	105.5	106.1	106.7	107.0	107.2	107.8	108.9	109.3	110.0	110.2	110.4	111.4
Unit nonlabor payments	108.3	108.3	108.4	108.8	109.1	110.5	111.0	110.7	111.3	111.6	112.4	112.9	111.8
Implicit price deflator	105.8	106.5	107.0	107.4	107.8	108.4	108.9	109.6	110.0	110.6	111.0	111.3	111.5
Nonfarm business													
Output per hour of all persons	100.7	100.3	100.5	100.8	101.4	102.1	102.8	102.6	103.1	103.4	104.0	104.9	105.3
Compensation per hour	104.9	105.5	106.3	107.1	108.1	109.1	110.5	111.4	112.3	113.5	114.4	115.5	117.0
Real compensation per hour	98.2	98.1	98.1	98.3	98.6	98.7	99.1	99.3	99.3	99.7	100.2	100.7	101.4
Unit labor costs	104.2	105.2	105.8	106.3	106.7	106.9	107.5	108.6	109.0	109.8	110.0	110.1	111.0
Unit nonlabor payments	109.2	109.6	109.6	109.7	109.8	111.0	111.3	110.9	111.4	111.7	112.4	113.2	112.2
Implicit price deflator	106.0	106.8	107.2	107.5	107.8	108.4	108.8	109.4	109.8	110.5	110.9	111.2	111.5
Nonfinancial corporations													
Output per hour of all employees	103.7	102.9	103.4	104.7	105.4	106.0	107.1	107.8	108.3	108.8	109.4	111.1	–
Compensation per hour	104.5	105.1	105.9	106.6	107.5	108.3	109.7	110.7	111.5	112.6	113.5	114.7	–
Real compensation per hour	97.8	97.7	97.6	97.8	98.0	98.0	98.4	98.6	98.6	98.9	99.5	100.0	–
Total unit costs	100.3	101.6	101.8	101.1	101.2	101.4	101.4	101.5	101.5	101.8	102.0	101.5	–
Unit labor costs	100.8	102.2	102.4	101.9	102.0	102.1	102.4	102.7	102.9	103.5	103.7	103.2	–
Unit nonlabor costs	99.1	99.8	100.1	99.0	99.1	99.2	98.4	98.1	97.4	97.0	97.1	96.6	–
Unit profits	142.1	135.2	134.9	145.5	147.3	152.5	154.7	156.0	156.4	157.9	159.1	164.5	–
Unit nonlabor payments	111.0	109.6	109.7	111.9	112.4	114.0	114.0	114.1	113.7	113.8	114.3	115.4	–
Implicit price deflator	104.1	104.6	104.8	105.1	105.4	106.0	106.2	106.4	106.5	106.9	107.2	107.2	–
Manufacturing													
Output per hour of all persons	105.7	106.6	107.7	108.8	109.2	110.4	111.6	113.0	114.0	114.9	116.0	118.3	119.5
Compensation per hour	106.6	107.2	108.2	109.2	110.1	110.8	112.1	112.9	113.5	114.7	115.4	116.4	118.1
Real compensation per hour	99.8	99.6	99.8	100.2	100.4	100.2	100.5	100.6	100.3	100.8	101.1	101.5	102.5
Unit labor costs	100.9	100.6	100.5	100.4	100.8	100.3	100.4	99.9	99.5	99.8	99.5	98.4	98.9

40. Annual indexes of multifactor productivity and related measures, selected years

[1987 = 100, unless otherwise indicated]

Item	1960	1970	1973	1980	1988	1989	1990	1991	1992	1993	1994
Private business											
Productivity:											
Output per hour of all persons	53.5	74.8	83.0	89.1	100.9	101.0	101.9	102.9	105.9	106.4	107.3
Output per unit of capital services	115.9	115.1	120.1	105.8	101.3	101.3	99.8	97.0	98.1	99.1	100.7
Multifactor productivity	70.5	87.2	95.3	96.0	100.5	100.2	100.1	99.1	100.5	101.0	101.8
Output	37.8	57.4	67.9	79.9	104.3	107.0	107.9	106.5	109.3	112.5	117.4
Inputs:											
Labor input	66.7	74.2	78.7	86.8	104.2	107.2	107.8	106.5	107.5	110.4	114.8
Capital services	32.6	49.9	56.6	75.5	102.9	105.7	108.1	109.8	111.4	113.5	116.6
Combined units of labor and capital input	53.6	65.8	71.3	83.2	103.8	106.7	107.9	107.5	108.7	111.3	115.4
Capital per hour of all persons	46.2	65.0	69.2	84.2	99.6	99.7	102.1	106.1	108.0	107.4	106.6
Private nonfarm business											
Productivity:											
Output per hour of all persons	57.7	77.3	85.6	90.6	100.9	100.7	101.3	102.5	105.1	105.6	106.4
Output per unit of capital services	122.6	120.5	125.2	108.2	101.3	100.8	99.1	96.2	96.9	98.1	99.3
Multifactor productivity	74.9	89.9	98.1	97.7	100.5	99.9	99.4	98.5	99.6	100.2	100.7
Output	37.4	57.4	68.3	80.2	104.5	107.1	107.8	106.4	108.9	112.4	117.1
Inputs:											
Labor input	61.4	72.0	76.9	85.7	104.4	107.6	108.3	106.8	108.0	111.2	115.6
Capital services	30.5	47.7	54.5	74.2	103.2	106.2	108.8	110.6	112.4	114.7	118.0
Combined units of labor and capital input	49.9	63.9	69.6	82.1	104.0	107.2	108.5	107.9	109.3	112.2	116.3
Capital per hour of all persons	47.0	64.1	68.3	83.8	99.6	99.9	102.2	106.6	108.5	107.7	107.1
Manufacturing (1992 = 100)											
Productivity:											
Output per hour of all persons	41.3	55.3	62.7	71.1	91.4	92.5	94.2	96.4	100.0	102.2	104.8
Output per unit of capital services	132.5	125.9	137.1	110.1	109.4	107.9	103.9	99.3	100.0	101.0	102.3
Multifactor productivity	71.2	82.6	90.2	86.4	100.8	99.5	99.9	98.1	100.0	101.4	103.7
Output	38.0	57.6	69.2	76.4	97.6	99.2	98.8	96.9	100.0	103.6	108.7
Inputs:											
Hours of all persons	92.1	104.2	110.5	107.5	106.8	107.2	104.9	100.6	100.0	101.4	103.7
Capital services	28.7	45.7	50.5	69.4	89.2	92.0	95.1	97.6	100.0	102.6	106.2

– Data not available.

NOTE: Productivity and output in this table have not been revised for consistency with the December 1991 comprehensive revisions to the National Income and Product Accounts.

41. Annual indexes of productivity, hourly compensation, unit costs, and prices, selected years

[1992 = 100]

Item	1960	1970	1973	1980	1988	1989	1990	1991	1993	1994	1995	1996	1997
Business													
Output per hour of all persons	51.4	70.5	78.4	84.2	94.6	95.4	96.1	96.7	100.2	100.6	100.5	102.6	104.5
Compensation per hour	13.6	23.6	29.0	54.5	83.5	85.8	90.7	95.1	102.6	104.3	106.9	111.1	115.4
Real compensation per hour	64.7	85.4	91.6	92.7	99.0	97.1	97.4	97.9	99.6	98.7	98.4	99.3	100.9
Unit labor costs	26.6	33.5	37.0	64.7	88.2	89.9	94.4	98.3	102.4	103.7	106.3	108.3	110.5
Unit nonlabor payments	24.6	30.6	36.6	59.6	84.1	91.3	93.5	96.6	102.7	106.8	108.7	110.9	112.2
Implicit price deflator	25.8	32.4	36.8	62.8	86.8	90.4	94.1	97.7	102.5	104.8	107.2	109.2	111.1
Nonfarm business													
Output per hour of all persons	54.8	72.6	80.7	86.0	95.2	95.7	96.2	96.9	100.1	100.5	100.7	102.6	104.3
Compensation per hour	14.3	23.8	29.2	54.8	83.6	85.8	90.6	95.1	102.3	104.1	106.7	110.8	115.0
Real compensation per hour	67.7	86.1	92.3	93.3	99.1	97.1	97.3	97.9	99.3	98.5	98.3	99.1	100.6
Unit labor costs	26.1	32.8	36.2	63.8	87.8	89.7	94.1	98.1	102.2	103.6	106.0	108.0	110.2
Unit nonlabor payments	24.0	30.3	34.3	58.6	83.8	90.7	93.2	96.8	103.1	107.4	109.7	111.2	112.4
Implicit price deflator	25.3	31.9	35.5	61.9	86.4	90.0	93.8	97.6	102.5	104.9	107.3	109.1	111.0
Nonfinancial corporations													
Output per hour of all employees	54.5	69.0	74.4	80.3	96.7	95.4	96.1	97.5	101.2	103.3	104.1	107.3	–
Compensation per hour	15.6	25.4	30.7	56.7	84.8	86.9	91.4	95.6	102.1	103.9	106.3	110.1	–
Real compensation per hour	73.9	91.7	97.2	96.5	100.6	98.4	98.1	98.5	99.1	98.4	97.9	98.4	–
Total unit costs	27.8	36.1	40.3	70.2	88.2	92.5	96.2	99.3	100.5	100.3	101.4	101.4	–
Unit labor costs	28.6	36.7	41.3	70.5	87.7	91.1	95.2	98.0	100.9	100.6	102.1	102.6	–
Unit nonlabor costs	25.3	34.3	37.5	69.2	89.7	96.3	99.1	103.0	99.4	99.7	99.5	98.3	–
Unit profits	47.7	42.0	52.8	64.4	103.8	96.0	94.6	93.9	113.3	134.5	140.8	154.9	–
Unit nonlabor payments	31.5	36.4	41.7	67.9	93.6	96.2	97.9	100.5	103.2	109.4	110.9	114.0	–
Implicit price deflator	29.6	36.6	41.5	69.7	89.6	92.8	96.1	98.8	101.7	103.4	105.0	106.3	–
Manufacturing													
Output per hour of all persons	41.2	55.1	62.6	71.0	91.4	92.6	94.3	96.4	102.2	104.7	108.1	112.1	117.1
Compensation per hour	14.9	23.8	28.6	55.8	84.0	86.8	91.0	95.7	102.9	105.6	108.7	112.1	116.1
Real compensation per hour	70.6	86.1	90.5	94.9	99.6	98.2	97.6	98.6	99.9	100.0	100.1	100.3	101.5
Unit labor costs	36.1	43.2	45.7	78.5	91.9	93.7	96.5	99.3	100.7	100.8	100.6	100.0	99.1
Unit nonlabor payments	26.6	30.1	37.0	79.5	91.2	96.8	100.1	99.6	101.1	103.0	107.8	–	–
Implicit price deflator	30.3	35.2	40.4	79.2	91.5	95.6	98.7	99.5	101.0	102.2	105.0	–	–

– Data not available.

42. Annual indexes of output per hour for selected industries

[1987 = 100]

Industry	SIC	1973	1984	1985	1986	1988	1989	1990	1991	1992	1993	1994	1995
Iron mining, usable ore	101	50.8	70.0	76.1	79.3	103.1	98.4	88.5	85.0	83.3	86.9	85.0	95.9
Copper mining, recoverable metal	102	42.4	75.9	93.6	109.7	109.1	106.5	102.7	100.5	115.2	118.1	126.0	120.3
Coal mining	12	68.9	83.4	85.1	92.4	110.5	116.4	118.3	122.1	132.7	140.4	147.3	153.9
Crude petroleum and natural gas production	131	173.5	81.9	83.0	90.3	100.9	98.0	96.9	97.9	102.1	105.9	112.4	120.5
Nonmetallic minerals, except fuels	14	86.5	94.0	95.1	95.1	101.0	99.6	101.4	98.5	103.0	100.8	104.4	103.0
Meat packing plants	2011	65.1	93.6	98.3	98.7	100.9	97.9	96.8	100.2	104.5	105.1	101.0	101.7
Sausages and other prepared meats	2013	67.2	99.3	97.8	98.6	107.1	105.9	97.4	95.9	104.6	105.0	101.4	105.3
Poultry dressing and processing	2015	58.0	99.1	100.5	95.6	96.2	105.2	108.6	115.4	119.6	119.8	119.4	122.5
Cheese, natural and processed	2022	72.1	85.1	88.2	93.5	99.8	102.6	108.2	114.6	121.8	115.5	117.5	120.5
Fluid milk	2026	54.6	88.9	92.0	96.0	102.3	103.7	103.3	104.3	104.0	107.1	112.9	115.8
Canned fruits and vegetables	2033	70.1	87.4	92.8	99.1	98.7	92.9	93.8	100.1	101.5	106.6	101.5	109.3
Frozen fruits and vegetables	2037	77.9	99.7	95.2	103.3	94.0	98.0	90.0	94.6	96.4	102.8	109.3	111.1
Flour and other grain mill products	2041	68.5	91.7	95.8	95.9	102.5	102.5	107.9	108.3	111.9	122.2	126.8	117.6
Cereal breakfast foods	2043	65.6	92.8	97.1	98.6	98.6	95.5	100.2	102.3	99.1	95.5	106.6	118.4
Rice milling	2044	59.3	63.8	68.6	72.7	83.1	97.5	104.9	99.3	101.4	129.5	109.2	102.6
Wet corn milling	2046	24.1	74.9	74.6	97.3	96.1	103.6	103.8	100.4	101.8	112.0	110.0	122.5
Prepared feeds for animals and fowls	2047,48	51.6	89.2	96.9	95.2	101.5	103.7	107.0	108.0	108.1	110.7	108.5	115.6
Bakery products	205	82.3	93.4	95.6	100.1	93.4	91.0	93.2	89.2	89.4	90.3	91.1	92.2
Raw and refined cane sugar	2061,62	78.5	89.1	96.6	96.9	99.7	101.8	107.7	110.3	111.7	120.2	115.0	121.8
Beet sugar	2063	75.9	79.7	73.4	80.8	97.6	92.1	97.6	102.3	110.8	109.8	124.2	135.9
Malt beverages	2082	43.3	77.7	73.7	85.0	99.1	105.2	110.6	109.6	113.4	112.6	117.5	118.0
Bottled and canned soft drinks	2086	49.2	81.6	85.2	91.4	109.8	119.4	126.7	135.1	144.2	144.7	150.4	160.0
Fresh or frozen prepared fish	2092	93.3	89.4	87.8	91.2	100.0	94.6	88.9	87.4	95.6	100.1	93.2	88.1
Cigarettes, chewing and smoking tobacco	211,3	79.4	91.3	93.6	95.4	104.8	106.7	109.9	111.6	113.4	101.6	130.1	149.2
Cotton and synthetic broadwoven fabrics	221,2	58.1	91.1	94.8	101.1	100.0	103.9	108.1	113.8	118.4	125.8	134.1	142.8
Hosiery	2251,52	63.2	102.4	100.9	102.5	108.1	110.9	109.2	115.7	122.2	117.4	124.8	127.1
Yarn spinning mills	2281	55.9	86.2	89.6	93.2	98.5	103.3	106.0	105.5	114.1	120.0	125.5	133.2
Men's and boys' suits and coats	231	75.6	93.2	106.3	103.5	102.4	101.9	98.7	91.4	102.4	109.0	129.1	121.5
Housefurnishings, except curtains and draperies	2392	87.2	83.6	92.4	93.6	99.8	96.8	101.3	110.9	117.9	118.7	114.1	115.4
Sawmills and planing mills, general	2421	68.3	89.7	93.5	102.3	101.2	100.1	99.9	102.9	108.9	101.5	103.2	110.3
Hardwood dimension and flooring mills	2426	84.0	85.6	95.1	98.8	97.5	96.9	95.7	98.6	105.4	111.2	111.0	117.1
Millwork	2431	104.2	100.4	97.4	102.2	98.2	97.8	97.8	95.7	93.4	92.5	88.5	86.0
Wood kitchen cabinets	2434	80.5	91.6	87.1	85.2	97.7	91.1	93.6	92.3	102.0	101.9	101.3	102.8
Hardwood veneer and plywood	2435	80.2	83.9	84.5	83.2	99.0	98.9	92.2	93.3	104.1	106.1	90.5	84.2
Softwood veneer and plywood	2436	67.7	87.1	88.3	90.4	100.6	102.6	108.3	114.3	109.2	103.4	101.4	101.5
Wood containers	244	–	103.4	99.6	98.7	103.2	108.8	111.6	113.5	109.8	100.5	101.0	107.1
Mobile homes	2451	–	94.4	94.3	94.4	100.6	98.8	101.2	102.5	102.4	103.8	97.6	99.7
Wood household furniture	2511,17	88.5	96.9	95.0	99.6	100.8	101.2	102.5	101.3	106.5	106.2	105.7	109.1
Upholstered household furniture	2512	75.1	96.2	96.3	101.7	98.8	101.2	107.7	115.1	120.0	120.0	130.6	138.7
Metal household furniture	2514	68.7	84.9	89.4	95.3	100.2	100.7	101.4	107.2	109.5	106.8	96.1	95.1
Mattresses and bedsprings	2515	68.0	84.1	79.5	85.5	92.5	106.5	106.2	108.9	103.4	104.4	105.5	110.9
Wood office furniture	2521	82.5	99.3	99.4	96.2	95.4	95.4	97.4	101.3	107.1	104.4	104.0	103.3
Office furniture, except wood	2522	70.6	97.6	96.9	100.6	96.0	98.7	95.6	92.9	93.9	94.3	95.4	98.4
Pulp, paper, and paperboard mills	261,2,3	67.1	89.7	87.6	93.3	103.1	103.2	102.6	102.1	104.7	104.5	112.4	116.2
Corrugated and solid fiber boxes	2635	70.3	96.7	99.6	102.8	99.8	98.1	100.9	100.8	101.9	105.5	110.0	107.6
Folding paperboard boxes	2657	86.4	93.4	90.0	88.5	101.6	105.4	105.3	110.9	116.4	117.9	122.9	126.8
Paper and plastic bags	2673,74	90.7	99.9	99.7	101.8	97.7	93.7	92.2	89.5	93.9	92.0	96.5	91.7
Alkalies and chlorine	2812	38.4	66.6	70.8	97.7	101.6	92.5	92.3	86.2	87.7	84.8	84.1	87.7
Inorganic pigments	2816	72.6	81.4	84.4	88.6	103.3	107.8	104.5	98.9	107.8	107.8	115.0	108.1
Industrial inorganic chemicals, n.e.s.	2819 pt.	90.6	88.4	87.3	88.6	97.5	105.9	109.0	102.3	104.9	110.7	113.2	126.5
Synthetic fibers	2823,24	38.4	79.8	79.3	90.8	102.9	104.1	98.7	97.5	99.3	112.3	119.4	125.7
Soaps and detergents	2841	89.1	90.5	91.5	92.3	102.4	109.4	128.2	126.4	115.3	112.6	111.7	126.0
Cosmetics and other toiletries	2844	88.6	87.3	90.3	96.6	105.2	102.7	101.1	103.9	108.4	108.5	111.6	115.2
Paints and allied products	285	63.2	93.6	96.9	98.0	101.4	103.3	106.3	104.3	102.9	108.8	116.7	116.6
Industrial organic chemicals, n.e.c.	2869	73.1	89.6	87.8	92.3	110.5	110.5	99.0	92.6	91.6	88.5	96.2	93.3
Nitrogenous fertilizers	2873	65.4	101.1	100.7	90.5	101.3	103.3	107.7	108.4	111.8	117.5	111.1	107.6
Phosphatic fertilizers	2874	62.4	88.4	84.2	79.6	92.0	83.3	99.7	107.3	105.0	106.0	122.6	118.1
Fertilizers, mixing only	2875	90.5	97.8	100.8	95.1	104.7	112.4	112.8	114.6	127.1	139.1	118.9	119.9
Agricultural chemicals, n.e.c.	2879	74.3	98.8	92.9	93.2	108.4	108.9	106.2	102.2	108.4	111.0	115.6	124.9
Petroleum refining	291	84.0	78.7	84.7	94.9	105.3	109.6	109.2	106.6	111.3	120.1	123.8	133.0
Tires and inner tubes	301	56.0	88.8	89.3	92.6	102.9	103.8	103.0	102.4	107.8	116.5	124.1	131.4
Rubber and plastics hose and belting	3052	78.4	104.9	100.1	102.1	108.2	97.8	103.3	96.1	104.3	111.3	102.9	102.0
Miscellaneous plastics products, n.e.c.	308	72.8	86.4	88.2	88.9	100.1	101.1	105.3	107.5	114.0	116.2	119.8	120.2
Footwear, except rubber	314	90.7	98.8	100.3	101.9	102.3	100.9	92.8	93.1	93.3	96.4	106.0	101.2
Glass containers	3221	75.2	97.4	93.4	98.5	99.6	101.6	107.5	108.1	111.5	106.0	111.0	109.9
Cement, hydraulic	324	71.3	89.4	91.8	97.1	103.2	110.2	112.4	108.3	115.1	119.9	125.6	123.4
Clay construction products	3251,53,59	78.5	92.7	94.2	95.5	105.2	98.3	102.3	97.4	98.9	102.3	108.0	111.3
Clay refractories	3255	80.1	96.9	94.9	100.8	102.3	98.5	103.6	97.9	98.6	95.0	107.3	96.0
Concrete products	3271,72	92.5	98.3	99.5	104.4	102.1	104.8	103.8	104.9	103.2	109.3	108.6	114.3
Ready-mixed concrete	3273	99.1	92.9	93.6	96.0	100.2	101.0	100.2	96.7	98.2	96.9	93.0	95.8
Steel	331	64.2	81.3	85.8	89.7	113.5	108.5	110.5	108.2	117.7	134.0	144.6	145.4
Gray and ductile iron foundries	3321	91.3	99.1	96.9	99.3	108.0	106.9	107.9	104.6	107.7	113.1	115.5	112.4
Steel foundries	3324,25	105.8	102.4	99.5	104.9	95.5	96.3	96.9	94.8	95.6	101.5	102.2	106.2
Primary copper	3331	32.8	57.6	73.8	88.7	103.8	94.7	84.9	82.5	71.9	86.9	74.0	77.3
Primary aluminum	3334	73.6	100.7	97.6	102.7	102.3	104.8	106.5	110.6	109.7	105.7	99.0	102.2
Copper rolling and drawing	3351	77.5	84.7	86.2	92.3	93.0	89.1	90.7	86.4	83.0	89.2	96.6	96.6

See footnotes at end of table.

42. Continued—Annual indexes of output per hour for selected industries

[1987 = 100]

Industry	SIC	1973	1984	1985	1986	1988	1989	1990	1991	1992	1993	1994	1995
Aluminum rolling and drawing	3353,54,55	79.0	92.3	85.7	95.8	96.3	90.6	91.2	90.3	96.5	93.9	99.6	93.9
Metal cans	3411	59.2	101.1	99.2	95.9	106.9	108.1	117.5	123.8	129.7	134.6	140.7	146.3
Hand and edge tools, n.e.c.	3423	108.6	97.9	98.8	97.1	100.5	101.0	95.0	93.1	93.1	93.3	100.8	98.4
Heating equipment, except electric	3433	78.0	91.6	91.9	96.2	113.7	105.0	114.0	119.4	121.2	121.8	130.2	131.1
Fabricated structural metal	3441	97.1	91.2	99.0	99.0	100.4	97.6	101.2	104.5	103.6	108.1	109.8	110.1
Metal doors, sash, and trim	3442	90.5	101.4	104.8	102.0	104.6	105.8	103.1	103.0	106.7	105.5	103.3	96.8
Fabricated plate work	3443	–	88.3	87.5	86.4	96.2	90.3	94.1	94.3	98.3	98.3	109.3	109.4
Bolts, nuts, rivets, and washers	3452	75.8	85.3	88.8	91.0	97.0	93.8	93.7	96.1	91.9	92.8	95.8	100.5
Automotive stampings	3465	74.9	100.5	94.5	95.7	102.8	101.8	96.1	97.3	113.8	120.8	124.9	128.4
Metal stampings, n.e.c.	3469	96.8	94.3	88.6	93.9	98.0	95.3	90.4	89.5	98.8	104.8	109.3	112.8
Valves and pipe fittings	3491,92,94	93.6	95.0	94.4	93.9	101.4	101.2	102.1	101.7	100.4	104.2	109.7	109.7
Fabricated pipe and fittings	3498	140.8	130.0	120.0	121.4	99.6	102.3	107.0	114.2	109.6	113.3	112.9	113.0
Internal combustion engines, n.e.c.	3519	83.1	90.2	92.0	98.5	106.3	113.2	108.4	103.3	101.2	104.3	119.5	124.9
Farm machinery and equipment	3523	108.6	112.7	101.6	95.7	112.8	124.0	131.8	125.3	119.1	123.7	131.4	143.4
Lawn and garden equipment	3524	70.0	79.3	82.4	93.2	97.5	93.2	94.8	95.8	108.7	114.7	116.6	126.3
Construction machinery	3531	87.9	91.6	92.2	99.1	107.6	110.2	109.6	101.0	100.6	107.0	123.2	132.9
Mining machinery	3532	102.2	90.2	93.7	95.1	102.0	107.0	98.4	90.0	90.1	109.5	99.5	109.3
Oil and gas field machinery	3533	156.9	126.0	115.2	105.9	123.1	116.1	113.9	110.9	125.7	122.1	119.9	117.5
Metal cutting machine tools	3541	101.4	87.2	89.9	92.0	94.8	99.9	99.2	94.8	113.0	111.4	110.0	111.9
Metal forming machine tools	3542	112.5	90.7	93.1	93.7	113.1	107.9	97.7	88.4	102.5	115.0	104.3	116.2
Machine tool accessories	3545	105.9	94.6	92.3	95.0	98.2	102.5	104.1	104.6	96.8	101.5	114.8	122.3
Pumps and pumping equipment	3561,94	84.0	92.0	91.9	92.7	105.7	101.3	103.4	102.5	98.6	105.2	110.6	113.4
Ball and roller bearings	3562	108.0	95.4	91.6	94.1	102.9	99.0	93.1	89.6	97.8	103.8	106.3	107.2
Air and gas compressors	3563	87.6	90.1	92.2	96.0	103.7	105.3	107.8	110.2	112.7	111.5	117.3	115.0
Refrigeration and heating equipment	3585	100.3	100.1	98.1	95.8	104.0	109.0	106.3	104.8	107.6	111.8	115.1	115.0
Carburetors, pistons, rings, and valves	3592	102.9	95.1	98.8	95.7	109.9	119.4	114.1	115.1	126.4	136.4	142.9	143.0
Transformers, except electronic	3612	100.2	95.4	97.0	99.3	102.8	104.3	107.3	110.7	126.5	121.8	143.4	159.9
Switchgear and switchboard apparatus	3613	88.2	92.2	95.1	95.9	109.1	106.5	106.5	103.9	114.6	123.1	123.8	131.7
Motors and generators	3621	89.0	93.3	94.9	96.8	102.8	103.6	100.9	104.4	111.5	127.1	124.4	139.1
Household cooking equipment	3631	61.8	92.0	90.3	104.6	116.1	96.8	99.5	104.9	100.9	103.7	127.4	125.5
Household refrigerators and freezers	3632	70.1	97.5	104.1	101.2	103.3	105.2	107.3	111.8	116.0	116.8	126.7	124.2
Household laundry equipment	3633	72.3	92.8	93.8	97.4	106.1	98.7	104.0	111.0	115.9	144.8	150.5	131.6
Household appliances, n.e.c.	3639	63.7	85.9	86.3	89.1	100.6	98.3	91.8	80.5	91.6	117.6	118.9	116.0
Electric lamp bulbs and tubes	3641	61.3	86.4	94.2	91.5	100.3	92.7	98.0	101.8	112.8	100.9	98.9	95.9
Lighting fixtures and equipment	3645,46,47,48	84.1	91.3	96.7	103.0	98.1	97.3	96.0	94.3	98.9	103.7	110.0	107.5
Household audio and video equipment	3651	22.3	84.7	96.3	106.9	106.2	120.5	124.1	135.7	151.8	163.1	179.3	225.3
Motor vehicles and equipment	371	68.7	91.1	95.3	95.1	103.2	103.3	102.4	96.7	104.3	105.4	107.3	104.4
Aircraft	3721	79.2	84.7	94.2	93.5	105.8	107.5	112.9	131.4	141.7	142.5	131.8	132.5
Instruments to measure electricity	3825	63.7	96.2	95.4	90.4	106.1	105.2	106.2	108.3	119.0	122.4	144.7	163.6
Photographic equipment and supplies	386	58.9	88.2	86.1	94.1	105.6	113.0	107.8	110.2	116.4	126.9	132.7	129.4
Railroad transportation	4011	46.5	78.0	81.5	89.2	108.4	114.6	118.5	127.8	139.6	145.6	–	–
Bus carriers, class 1	411,13,14 pts.	116.8	100.1	96.1	95.6	107.9	104.6	–	–	–	–	–	–
Trucking, except local	4213	69.5	97.3	93.8	96.8	105.2	109.4	–	–	–	–	–	–
U.S. Postal service	43	88.6	98.1	98.4	100.0	99.9	99.7	104.0	103.7	104.5	107.1	106.6	106.5
Air transportation	4512,13,22 pts.	54.3	88.8	92.0	93.8	99.5	95.8	92.9	92.5	96.9	100.2	105.8	108.4
Petroleum pipelines	4612,13	93.2	99.4	99.9	102.0	104.8	103.2	102.5	99.0	100.2	104.4	108.1	117.7
Telephone communications	481	42.7	84.5	88.9	95.0	106.2	111.6	113.3	119.8	127.7	135.2	141.6	144.6
Electric utilities	491,3 pt.	88.4	93.8	93.0	95.3	104.9	107.7	110.1	113.4	115.2	120.6	126.8	135.0
Gas utilities	492,3 pt	145.5	114.1	111.9	102.1	105.5	103.5	94.8	94.0	95.3	107.0	102.2	105.9
Scrap and waste materials	5093	–	89.1	93.4	97.7	95.4	86.0	98.6	98.9	101.7	109.4	107.7	108.9
Hardware stores	525	83.3	96.6	95.6	101.6	108.6	115.2	110.4	102.5	107.2	106.7	114.5	106.4
Department stores	531	60.8	90.4	92.6	97.4	99.2	96.9	94.2	98.2	101.2	105.0	107.1	107.6
Variety stores	533	148.9	141.9	129.2	106.7	101.9	124.5	151.3	154.3	167.7	170.4	160.5	159.3
General merchandise stores	539	–	78.6	80.9	97.5	100.8	109.8	116.4	121.8	136.1	159.9	161.6	165.9
Grocery stores	541	109.1	107.9	105.7	103.8	98.9	95.4	94.6	93.7	93.3	92.7	92.2	91.2
Retail bakeries	546	125.6	96.0	87.6	93.6	89.8	83.3	89.7	94.7	94.0	85.6	85.6	84.6
New and used car dealers	551	85.1	99.5	99.8	101.6	103.5	102.5	106.1	104.2	106.5	107.4	108.3	107.1
Auto and home supply stores	553	71.1	90.4	94.5	94.3	103.2	101.5	102.8	98.9	98.9	98.9	103.0	106.8
Gasoline service stations	554	59.5	87.0	93.5	101.8	103.0	105.1	102.6	104.3	109.7	112.4	115.0	119.2
Men's and boys' clothing stores	561	77.6	93.7	98.3	100.7	106.0	109.3	112.8	117.7	116.4	115.7	120.9	122.6
Women's clothing stores	562	58.9	98.0	99.8	107.0	97.5	99.1	100.8	101.9	110.7	116.2	118.1	122.9
Family clothing stores	565	76.2	106.2	103.1	103.3	102.4	105.5	104.9	106.9	112.3	111.6	114.9	128.4
Shoe stores	566	81.3	90.6	97.6	105.5	102.7	107.2	106.2	105.1	111.5	110.8	120.5	123.8
Furniture and homefurnishings stores	571	83.9	97.9	94.8	101.2	98.9	101.3	102.2	101.6	108.6	108.9	111.0	116.4
Household appliance stores	572	59.8	87.2	94.9	106.5	98.5	103.5	102.8	105.2	113.9	114.6	115.9	119.9
Radio, television, and computer stores	573	45.6	79.1	89.3	94.1	119.3	115.7	120.9	129.6	143.5	157.3	178.4	195.6
Eating and drinking places	58	110.3	98.9	96.2	99.3	102.8	102.2	104.0	103.1	102.4	103.1	101.4	102.2
Drug stores and proprietary stores	591	92.2	106.4	102.5	101.6	101.9	102.5	103.6	104.7	103.6	104.7	103.7	102.8
Liquor stores	592	95.0	93.6	101.9	93.8	98.2	101.1	105.2	105.9	108.4	100.5	98.7	104.4
Miscellaneous shopping goods stores	594	–	92.6	94.1	97.1	98.4	101.7	101.5	102.0	100.6	103.9	108.2	114.0
Catalog and mail-order houses	5961	–	80.6	80.8	87.2	107.3	111.4	102.1	107.2	113.8	121.0	120.0	123.9
Commercial banks	602	81.2	89.6	94.3	96.2	102.9	101.3	104.6	107.4	109.4	119.5	119.5	124.4
Hotels and motels	701	102.4	101.6	101.2	98.9	97.6	95.0	96.0	99.0	107.6	106.8	111.0	113.2
Laundry, cleaning, and garment services	721	110.8	107.5	103.3	100.8	97.2	100.5	101.0	98.7	99.9	99.9	101.9	105.1
Beauty shops	723	85.9	98.5	98.1	96.9	95.1	99.6	96.8	94.8	99.6	96.5	101.1	104.8
Automotive repair shops	753	109.4	91.7	99.4	96.2	105.7	108.1	106.9	98.7	103.3	102.9	110.4	116.4

n.e.s. = not elsewhere specified.
n.e.c. = not elsewhere classified.
– Data not available.

43. Unemployment rates, approximating U.S. concepts, in nine countries, quarterly data seasonally adjusted

Country	Annual average		1996				1997			
	1995	1996	I	II	III	IV	I	II	III	IV
United States	5.6	5.4	5.6	5.4	5.3	5.3	5.3	4.9	4.9	4.7
Canada	9.5	9.7	9.5	9.6	9.8	9.9	9.6	9.4	9.0	8.9
Australia	8.5	8.6	8.5	8.5	8.7	8.6	8.7	8.7	8.6	8.3
Japan	3.2	3.4	3.4	3.5	3.4	3.3	3.3	3.4	3.4	3.5
France	11.8	12.6	12.3	12.5	12.7	12.6	12.6	12.7	12.7	12.5
Germany	6.5	7.2	6.9	7.1	7.2	7.5	7.7	7.7	7.8	–
Italy	12.0	12.1	12.0	12.1	12.2	12.1	12.3	12.4	12.2	12.3
Sweden	9.1	9.9	9.4	9.6	10.0	10.4	10.6	10.4	9.5	8.8
United Kingdom	8.7	8.2	8.3	8.3	8.2	7.9	7.5	7.3	6.9	6.6

[1] Quarterly rates are for the first month of the quarter.

– Data not available.

NOTE: Quarterly figures for France, Germany, and the United Kingdom are calculated by applying annual adjustment factors to current published data, and therefore should be viewed as less precise indicators of unemployment under U.S. concepts than the annual figures. See "Notes on the data" for information on breaks in series. For further qualifications and historical data, see *Comparative Labor Force Statistics, 10 Countries* (Bureau of Labor Statistics, August 1996).

44. Annual data: Employment status of the working-age population, approximating U.S. concepts, 10 countries

[Numbers in thousands]

Employment status and country	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Civilian labor force										
United States[1]	119,865	121,669	123,869	125,840	126,346	128,105	129,200	131,056	132,304	133,943
Canada	13,631	13,900	14,151	14,329	14,408	14,482	14,663	14,832	14,928	15,145
Australia	7,758	7,974	8,228	8,444	8,490	8,562	8,619	8,776	9,001	9,127
Japan	60,050	60,860	61,920	63,050	64,280	65,040	65,470	65,780	65,990	66,450
France	23,890	23,980	24,170	24,300	24,490	24,570	24,640	24,760	24,860	25,100
Germany	28,390	28,610	28,840	29,410	29,760	30,030	29,950	29,860	29,710	29,590
Italy	22,350	22,660	22,530	22,670	22,940	22,910	22,760	22,640	22,700	22,820
Netherlands	6,500	6,310	6,430	6,640	6,750	6,950	7,090	7,190	7,270	7,320
Sweden	4,437	4,494	4,552	4,597	4,591	4,520	4,443	4,418	4,460	4,459
United Kingdom	27,870	28,270	28,580	28,730	28,610	28,410	28,310	28,280	28,480	28,620
Participation rate[2]										
United States[1]	65.6	65.9	66.5	66.5	66.2	66.4	66.3	66.6	66.6	66.8
Canada	66.7	67.2	67.5	67.3	66.7	65.9	65.5	65.3	64.8	64.9
Australia	63.0	63.3	64.0	64.6	64.1	63.9	63.6	63.9	64.6	64.6
Japan	61.9	61.9	62.2	62.6	63.2	63.4	63.3	63.1	62.9	63.0
France	56.5	56.2	56.1	56.0	56.0	55.8	55.6	55.5	55.3	55.5
Germany	55.0	55.1	55.2	55.3	55.4	55.1	54.2	53.7	53.2	52.8
Italy	47.6	47.4	47.3	47.2	47.7	47.5	48.1	47.5	47.6	47.7
Netherlands	56.3	54.2	54.7	56.1	56.5	57.8	58.5	59.0	59.3	59.4
Sweden	66.4	66.9	67.3	67.4	67.0	65.7	64.5	63.9	64.3	64.3
United Kingdom	62.9	63.5	64.0	64.1	63.7	63.1	62.8	62.5	62.7	62.7
Employed										
United States[1]	112,440	114,968	117,342	118,793	117,718	118,492	120,259	123,060	124,900	126,708
Canada	12,422	12,819	13,086	13,165	12,916	12,842	13,015	13,292	13,506	13,676
Australia	7,129	7,398	7,720	7,859	7,676	7,637	7,680	7,921	8,235	8,344
Japan	58,320	59,310	60,500	61,710	62,920	63,620	63,810	63,860	63,890	64,200
France	21,320	21,520	21,850	22,100	22,140	22,010	21,730	21,710	21,940	21,950
Germany	26,590	26,800	27,200	27,950	28,480	28,660	28,230	27,920	27,770	27,470
Italy	20,590	20,870	20,770	21,080	21,360	21,230	20,430	20,080	19,970	20,050
Netherlands	5,850	5,830	5,980	6,230	6,350	6,560	6,620	6,670	6,760	6,850
Sweden	4,340	4,410	4,480	4,513	4,447	4,265	4,028	3,992	4,056	4,019
United Kingdom	25,010	25,850	26,510	26,740	26,090	25,530	25,340	25,550	26,000	26,280
Employment-population ratio[3]										
United States[1]	61.5	62.3	63.0	62.8	61.7	61.5	61.7	62.5	62.9	63.2
Canada	60.8	62.0	62.4	61.9	59.8	58.4	58.2	58.5	58.6	58.6
Australia	57.9	58.7	60.1	60.1	57.9	57.0	56.6	57.7	59.1	59.1
Japan	60.1	60.4	60.8	61.3	61.8	62.0	61.7	61.3	60.9	60.9
France	50.4	50.4	50.7	50.9	50.6	50.0	49.0	48.7	48.8	48.5
Germany	51.5	51.6	52.0	52.6	53.0	52.6	51.1	50.2	49.7	49.0
Italy	43.8	43.7	43.6	43.9	44.5	44.0	43.1	42.1	41.8	41.9
Netherlands	50.7	50.0	50.9	52.6	53.2	54.5	54.7	54.7	55.2	55.6
Sweden	65.0	65.7	66.2	66.1	64.9	62.0	58.5	57.6	58.4	57.9
United Kingdom	56.4	58.1	59.3	59.6	58.0	56.7	56.2	56.5	57.2	57.6
Unemployed										
United States[1]	7,425	6,701	6,528	7,047	8,628	9,613	8,940	7,996	7,404	7,236
Canada	1,208	1,082	1,065	1,164	1,492	1,640	1,649	1,541	1,422	1,469
Australia	629	576	508	585	814	925	939	856	766	783
Japan	1,730	1,550	1,420	1,340	1,360	1,420	1,660	1,920	2,100	2,250
France	2,570	2,460	2,320	2,200	2,350	2,560	2,910	3,050	2,920	3,150
Germany	1,800	1,810	1,640	1,460	1,280	1,370	1,720	1,940	1,940	2,120
Italy	1,760	1,790	1,760	1,590	1,580	1,680	2,330	2,560	2,720	2,760
Netherlands	650	480	450	410	400	390	470	520	510	470
Sweden	97	84	72	84	144	255	415	426	404	440
United Kingdom	2,860	2,420	2,070	1,990	2,520	2,880	2,970	2,730	2,480	2,340
Unemployment rate										
United States[1]	6.2	5.5	5.3	5.6	6.8	7.5	6.9	6.1	5.6	5.4
Canada	8.9	7.8	7.5	8.1	10.4	11.3	11.2	10.4	9.5	9.7
Australia	8.1	7.2	6.2	6.9	9.6	10.8	10.9	9.7	8.5	8.6
Japan	2.9	2.5	2.3	2.1	2.1	2.2	2.5	2.9	3.2	3.4
France	10.8	10.3	9.6	9.1	9.6	10.4	11.8	12.3	11.8	12.6
Germany	6.3	6.3	5.7	5.0	4.3	4.6	5.7	6.5	6.5	7.2
Italy	7.9	7.9	7.8	7.0	6.9	7.3	10.2	11.3	12.0	12.1
Netherlands	10.0	7.6	7.0	6.2	5.9	5.6	6.6	7.2	7.0	6.4
Sweden	2.2	1.9	1.6	1.8	3.1	5.6	9.3	9.6	9.1	9.9
United Kingdom	10.3	8.6	7.2	6.9	8.8	10.1	10.5	9.7	8.7	8.2

[1] Data for 1994 are not directly comparable with data for 1993 and earlier years. For additional information, see the box note under "Employment and Unemployment Data" in the notes to this section.

[2] Labor force as a percent of the working-age population.

[3] Employment as a percent of the working-age population.

NOTE: See "Notes on the data" for information on breaks in series for the United States, France, Italy, the Netherlands, and Sweden. Dash indicates data not available.

45. Annual indexes of manufacturing productivity and related measures, 12 countries

[1992 = 100]

Item and country	1960	1970	1973	1980	1986	1987	1988	1989	1990	1991	1993	1994	1995	1996
Output per hour														
United States	–	–	–	71.9	88.2	94.3	97.8	97.0	97.7	98.2	101.6	105.8	109.2	112.7
Canada	40.5	60.4	72.2	78.5	92.6	93.5	93.9	94.3	95.8	96.3	101.7	106.2	107.5	108.6
Japan	14.0	38.0	48.1	63.9	76.9	81.2	84.8	89.5	95.4	99.4	100.5	101.8	109.2	114.1
Belgium	17.8	32.7	42.6	64.5	87.6	88.7	91.7	96.7	96.9	99.1	104.1	110.0	109.3	–
Denmark	29.5	52.1	66.1	89.2	90.0	89.6	92.9	96.1	96.0	97.9	106.8	–	–	–
France	23.0	45.5	53.9	70.5	85.2	86.7	92.7	97.4	99.1	98.7	101.8	110.4	114.5	117.0
Germany	29.2	52.1	61.1	77.3	89.5	88.4	91.6	94.4	99.0	102.0	100.4	108.0	111.1	115.7
Italy	19.6	36.8	43.9	64.0	82.6	85.0	86.6	89.4	92.8	95.3	104.5	107.4	110.7	113.3
Netherlands	19.6	38.6	48.9	70.0	91.2	91.9	93.9	97.3	98.6	99.6	102.1	112.1	115.9	–
Norway	36.7	57.8	67.6	76.7	89.0	93.3	92.1	94.6	96.6	97.5	100.6	101.4	102.5	103.3
Sweden	27.6	52.8	62.1	74.0	88.5	90.1	90.8	93.8	95.0	95.0	106.7	116.1	122.0	124.8
United Kingdom	30.5	43.7	51.9	54.9	74.7	78.8	83.1	87.1	90.1	94.4	105.6	108.7	107.7	107.5
Output														
United States	–	–	–	77.4	91.0	97.9	104.4	104.0	102.5	98.8	103.0	109.8	113.6	116.7
Canada	34.2	61.0	77.6	85.9	99.3	104.1	109.4	110.3	106.2	98.7	104.8	112.8	117.1	118.6
Japan	10.7	38.8	50.0	59.9	74.9	78.4	84.6	90.2	96.3	101.4	96.0	95.4	100.5	105.0
Belgium	30.7	57.5	70.6	78.2	89.0	88.7	93.1	98.9	101.0	100.7	96.9	101.4	104.4	–
Denmark	40.1	66.8	78.1	89.7	101.7	97.6	99.1	100.3	99.3	99.2	101.1	103.0	105.9	105.6
France	32.4	66.9	80.1	92.7	91.2	91.1	96.3	101.6	103.5	101.7	96.2	101.3	105.4	106.2
Germany	41.5	70.9	78.5	85.3	89.7	88.0	90.9	94.0	99.1	102.8	91.5	93.1	93.4	92.9
Italy	21.5	44.8	54.1	78.7	84.8	88.5	94.8	98.6	100.4	99.7	96.6	101.9	107.7	106.8
Netherlands	31.8	59.7	67.9	77.6	88.1	89.3	92.7	96.9	100.1	100.6	98.3	103.3	105.8	–
Norway	56.6	89.1	102.2	103.6	108.1	110.7	105.3	101.3	100.2	98.3	102.7	106.7	109.9	112.9
Sweden	46.5	81.7	88.5	91.8	105.2	107.7	110.2	111.6	110.6	103.6	101.3	115.7	127.0	129.8
United Kingdom	68.4	91.2	100.6	88.1	91.1	95.3	102.0	106.6	106.4	100.6	101.4	105.6	108.0	108.5
Total hours														
United States	92.2	104.5	110.5	107.6	103.1	103.9	106.8	107.2	104.9	100.6	101.4	103.8	104.1	103.5
Canada	84.5	100.9	107.5	109.5	107.2	111.4	116.5	117.0	110.8	102.5	103.0	106.2	108.9	109.1
Japan	76.3	102.3	104.0	93.8	97.3	96.6	99.8	100.8	100.9	102.0	95.6	93.7	92.0	92.0
Belgium	172.1	176.3	165.6	121.4	101.6	100.0	101.5	102.3	104.3	101.6	93.2	92.2	95.6	–
Denmark	135.8	128.3	118.1	100.6	113.1	109.0	106.6	104.3	103.3	101.3	94.7	–	–	–
France	140.6	147.0	148.7	131.5	107.2	105.1	104.0	104.4	104.5	103.0	94.5	91.8	92.0	90.8
Germany	142.4	136.1	128.4	110.3	100.1	99.6	99.2	99.5	100.1	100.8	91.1	86.2	84.0	80.3
Italy	109.6	121.8	123.4	123.0	102.7	104.1	109.5	110.2	108.2	104.6	92.4	94.8	97.2	94.3
Netherlands	162.7	154.5	138.7	111.0	96.6	97.2	98.7	99.6	101.6	101.0	96.3	92.2	91.3	–
Norway	154.0	154.3	151.2	135.0	121.6	118.6	114.3	107.1	103.7	100.8	102.1	105.2	107.2	109.3
Sweden	168.3	154.7	142.5	124.0	118.9	119.5	121.4	119.0	116.4	109.0	94.9	99.6	104.1	104.0
United Kingdom	224.4	208.6	194.0	160.3	121.9	120.9	122.7	122.3	118.0	106.6	96.0	97.2	100.3	100.9
Compensation per hour														
United States	14.9	23.8	28.6	55.8	78.6	80.8	84.0	86.8	91.0	95.7	102.4	105.1	108.8	112.0
Canada	10.5	18.3	22.9	50.2	77.5	79.8	83.3	86.4	91.3	97.1	100.1	102.1	103.9	108.5
Japan	4.3	16.5	26.8	58.6	76.1	77.9	79.2	84.2	90.7	95.9	104.6	106.7	110.0	111.6
Belgium	5.5	14.1	21.6	52.5	77.2	79.0	80.6	84.8	89.6	95.3	105.0	108.4	111.7	–
Denmark	4.6	13.2	20.4	49.4	72.9	79.7	82.5	87.2	92.6	96.2	102.4	–	–	–
France	4.3	10.5	14.9	41.3	76.8	79.7	82.7	87.2	91.8	96.3	103.6	106.2	107.7	110.0
Germany	8.1	20.8	29.1	53.8	73.1	76.6	79.6	83.4	89.4	95.1	106.1	112.1	117.5	123.4
Italy	1.6	4.6	7.0	27.9	62.6	66.1	68.7	75.5	84.0	93.1	107.1	106.6	109.2	117.1
Netherlands	6.4	20.4	31.8	64.8	85.2	87.9	87.6	88.4	90.8	95.2	103.8	107.1	109.9	–
Norway	4.7	11.8	17.0	39.0	69.1	78.5	83.3	87.2	92.3	97.5	101.5	104.4	109.2	114.0
Sweden	4.1	10.8	15.2	37.4	63.1	67.3	71.7	79.4	87.6	95.4	98.0	101.1	107.4	114.3
United Kingdom	3.1	6.5	9.7	33.9	59.7	66.3	70.6	75.2	83.5	93.1	106.6	109.9	110.8	115.0
Unit labor costs: National currency basis														
United States	–	–	–	77.6	89.1	85.7	85.9	89.4	93.1	97.5	100.8	99.4	99.7	99.3
Canada	25.9	30.3	31.8	63.9	83.6	85.3	88.7	91.7	95.2	100.9	98.4	96.1	96.7	99.9
Japan	30.9	43.3	55.7	91.7	99.0	96.0	93.4	94.0	95.0	96.5	104.1	104.9	100.7	97.8
Belgium	31.1	43.1	50.6	81.4	88.1	89.1	87.9	87.8	92.5	96.1	100.9	98.6	102.2	–
Denmark	15.5	25.3	30.8	55.3	81.0	89.0	88.8	90.7	96.5	98.3	95.9	97.9	102.2	104.9
France	18.7	23.0	27.6	58.6	90.2	92.0	89.3	89.5	92.6	97.6	101.8	96.2	94.0	94.0
Germany	28.0	39.9	47.6	69.6	81.6	86.7	86.9	88.3	90.3	93.2	105.6	103.9	105.7	106.6
Italy	8.0	12.6	16.0	43.7	75.8	77.8	79.4	84.4	90.5	97.7	102.5	99.2	98.6	103.3
Netherlands	32.9	52.7	65.0	92.6	93.4	95.7	93.3	90.8	92.1	95.5	101.7	95.5	94.9	–
Norway	12.9	20.4	25.1	50.8	77.7	84.1	90.4	92.2	95.6	100.0	100.9	102.9	106.5	110.3
Sweden	14.9	20.5	24.4	50.6	71.3	74.7	79.0	84.7	92.3	100.4	91.8	87.0	88.0	91.6
United Kingdom	10.3	14.8	18.7	61.7	79.9	84.1	84.9	86.3	92.6	98.6	101.0	101.1	102.9	107.0
Unit labor costs: U.S. dollar basis														
United States	–	–	–	77.6	89.1	85.7	85.9	89.4	93.1	97.5	100.8	99.4	99.7	99.3
Canada	32.3	35.1	38.4	66.1	72.7	77.8	87.1	93.6	98.6	106.4	92.1	85.0	85.2	88.5
Japan	10.9	15.3	26.1	51.5	74.5	84.2	92.4	86.3	83.1	90.9	118.8	130.1	135.9	114.0
Belgium	20.0	27.9	41.9	89.6	63.4	76.7	76.8	71.6	88.9	90.4	93.8	94.8	111.5	–
Denmark	13.5	20.4	30.9	59.4	60.4	78.4	79.5	74.8	94.1	92.7	89.2	93.0	110.2	109.1
France	20.2	22.0	32.9	73.5	69.0	81.0	79.3	74.3	90.0	91.5	95.1	91.8	99.8	97.3
Germany	10.5	17.1	28.1	59.9	58.7	75.3	77.2	73.3	87.2	87.7	99.7	100.0	115.3	110.7
Italy	15.9	24.7	34.0	62.9	62.6	73.9	75.1	75.8	93.0	97.0	80.3	75.8	74.6	82.5
Netherlands	15.4	25.6	41.1	82.0	87.1	83.0	83.0	75.3	88.9	89.8	96.2	92.4	104.0	–
Norway	11.3	17.8	27.2	63.9	65.3	77.5	86.1	82.9	95.0	95.7	88.3	90.7	104.5	106.1
Sweden	16.8	23.0	32.7	69.6	58.3	68.5	75.0	76.4	90.8	96.6	68.6	65.7	71.8	79.6
United Kingdom	16.3	20.0	25.9	81.3	66.4	78.0	85.6	80.0	93.5	98.7	85.9	87.7	91.9	94.5

– Data not available.

46. Occupational injury and illness rates by industry,[1] United States

Industry and type of case[2]	Incidence rates per 100 full-time workers[3]											
	1985	1986	1987	1988	1989[1]	1990	1991	1992	1993[4]	1994[4]	1995[4]	1996[4]
PRIVATE SECTOR[5]												
Total cases	7.9	7.9	8.3	8.6	8.6	8.8	8.4	8.9	8.5	8.4	8.1	7.4
Lost workday cases	3.6	3.6	3.8	4.0	4.0	4.1	3.9	3.9	3.8	3.8	3.6	3.4
Lost workdays	64.9	65.8	69.9	76.1	78.7	84.0	86.5	93.8	–	–	–	–
Agriculture, forestry, and fishing[5]												
Total cases	11.4	11.2	11.2	10.9	10.9	11.6	10.8	11.6	11.2	10.0	9.7	8.7
Lost workday cases	5.7	5.6	5.7	5.6	5.7	5.9	5.4	5.4	5.0	4.7	4.3	3.9
Lost workdays	91.3	93.6	94.1	101.8	100.9	112.2	108.3	126.9	–	–	–	–
Mining												
Total cases	8.4	7.4	8.5	8.8	8.5	8.3	7.4	7.3	6.8	6.3	6.2	5.4
Lost workday cases	4.8	4.1	4.9	5.1	4.8	5.0	4.5	4.1	3.9	3.9	3.9	3.2
Lost workdays	145.3	125.9	144.0	152.1	137.2	119.5	129.6	204.7	–	–	–	–
Construction												
Total cases	15.2	15.2	14.7	14.6	14.3	14.2	13.0	13.1	12.2	11.8	10.6	9.9
Lost workday cases	6.8	6.9	6.8	6.8	6.8	6.7	6.1	5.8	5.5	5.5	4.9	4.5
Lost workdays	128.9	134.5	135.8	142.2	143.3	147.9	148.1	161.9	–	–	–	–
General building contractors:												
Total cases	15.2	14.9	14.2	14.0	13.9	13.4	12.0	12.2	11.5	10.9	9.8	9.0
Lost workday cases	6.8	6.6	6.5	6.4	6.5	6.4	5.5	5.4	5.1	5.1	4.4	4.0
Lost workdays	120.4	122.7	134.0	132.2	137.3	137.6	132.0	142.7	–	–	–	–
Heavy construction, except building:												
Total cases	14.5	14.7	14.5	15.1	13.8	13.8	12.8	12.1	11.1	10.2	9.9	9.0
Lost workday cases	6.3	6.3	6.4	7.0	6.5	6.3	6.0	5.4	5.1	5.0	4.8	4.3
Lost workdays	127.3	132.9	139.1	162.3	147.1	144.6	160.1	165.8	–	–	–	–
Special trades contractors:												
Total cases	15.4	15.6	15.0	14.7	14.6	14.7	13.5	13.8	12.8	12.5	11.1	10.4
Lost workday cases	7.0	7.2	7.1	7.0	6.9	6.9	6.3	6.1	5.8	5.8	5.0	4.8
Lost workdays	133.3	140.4	135.7	141.1	144.9	153.1	151.3	168.3	–	–	–	–
Manufacturing												
Total cases	10.4	10.6	11.9	13.1	13.1	13.2	12.7	12.5	12.1	12.2	11.6	10.6
Lost workday cases	4.6	4.7	5.3	5.7	5.8	5.8	5.6	5.4	5.3	5.5	5.3	4.9
Lost workdays	80.2	85.2	95.5	107.4	113.0	120.7	121.5	124.6	–	–	–	–
Durable goods:												
Total cases	10.9	11.0	12.5	14.2	14.1	14.2	13.6	13.4	13.1	13.5	12.8	11.6
Lost workday cases	4.7	4.8	5.4	5.9	6.0	6.0	5.7	5.5	5.4	5.7	5.6	5.1
Lost workdays	82.0	87.1	96.8	111.1	116.5	123.3	122.9	126.7	–	–	–	–
Lumber and wood products:												
Total cases	18.5	18.9	18.9	19.5	18.4	18.1	16.8	16.3	15.9	15.7	14.9	14.2
Lost workday cases	9.3	9.7	9.6	10.0	9.4	8.8	8.3	7.6	7.6	7.7	7.0	6.8
Lost workdays	171.4	177.2	176.5	189.1	177.5	172.5	172.0	165.8	–	–	–	–
Furniture and fixtures:												
Total cases	15.0	15.2	15.4	16.6	16.1	16.9	15.9	14.8	14.6	15.0	13.9	12.2
Lost workday cases	6.3	6.3	6.7	7.3	7.2	7.8	7.2	6.6	6.5	7.0	6.4	5.4
Lost workdays	100.4	103.0	103.6	115.7	–	–	–	128.4	–	–	–	–
Stone, clay, and glass products:												
Total cases	13.9	13.6	14.9	16.0	15.5	15.4	14.8	13.6	13.8	13.2	12.3	12.4
Lost workday cases	6.7	6.5	7.1	7.5	7.4	7.3	6.8	6.1	6.3	6.5	5.7	6.0
Lost workdays	127.8	126.0	135.8	141.0	149.8	160.5	156.0	152.2	–	–	–	–
Primary metal industries:												
Total cases	12.6	13.6	17.0	19.4	18.7	19.0	17.7	17.5	17.0	16.8	16.5	15.0
Lost workday cases	5.7	6.1	7.4	8.2	8.1	8.1	7.4	7.1	7.3	7.2	7.2	6.8
Lost workdays	113.8	125.5	145.8	161.3	168.3	180.2	169.1	175.5	–	–	–	–
Fabricated metal products:												
Total cases	16.3	16.0	17.0	18.8	18.5	18.7	17.4	16.8	16.2	16.4	15.8	14.4
Lost workday cases	6.9	6.8	7.2	8.0	7.9	7.9	7.1	6.6	6.7	6.7	6.9	6.2
Lost workdays	110.1	115.5	121.9	138.8	147.6	155.7	146.6	144.0	–	–	–	–
Industrial machinery and equipment:												
Total cases	10.8	10.7	11.3	12.1	12.1	12.0	11.2	11.1	11.1	11.6	11.2	9.9
Lost workday cases	4.2	4.2	4.4	4.7	4.8	4.7	4.4	4.2	4.2	4.4	4.4	4.0
Lost workdays	69.3	72.0	72.7	82.8	86.8	88.9	86.6	87.7	–	–	–	–
Electronic and other electrical equipment:												
Total cases	6.4	6.4	7.2	8.0	9.1	9.1	8.6	8.4	8.3	8.3	7.6	6.8
Lost workday cases	2.7	2.7	3.1	3.3	3.9	3.8	3.7	3.6	3.5	3.6	3.3	3.1
Lost workdays	45.7	49.8	55.9	64.6	77.5	79.4	83.0	81.2	–	–	–	–
Transportation equipment:												
Total cases	9.0	9.6	13.5	17.7	17.7	17.8	18.3	18.7	18.5	19.6	18.6	16.3
Lost workday cases	3.9	4.1	5.7	6.6	6.8	6.9	7.0	7.1	7.1	7.8	7.9	7.0
Lost workdays	71.6	79.1	105.7	134.2	138.6	153.7	166.1	186.6	–	–	–	–
Instruments and related products:												
Total cases	5.2	5.3	5.8	6.1	5.6	5.9	6.0	5.9	5.6	5.9	5.3	5.1
Lost workday cases	2.2	2.3	2.4	2.6	2.5	2.7	2.7	2.7	2.5	2.7	2.4	2.3
Lost workdays	37.9	42.2	43.9	51.5	55.4	57.8	64.4	65.3	–	–	–	–
Miscellaneous manufacturing industries:												
Total cases	9.7	10.2	10.7	11.3	11.1	11.3	11.3	10.7	10.0	9.9	9.1	9.5
Lost workday cases	4.2	4.3	4.6	5.1	5.1	5.1	5.1	5.0	4.6	4.5	4.3	4.4
Lost workdays	73.2	70.9	81.5	91.0	97.6	113.1	104.0	108.2	–	–	–	–

See footnotes at end of table.

46. Continued—Occupational injury and illness rates by industry,[1] United States

Industry and type of case[2]	Incidence rates per 100 full-time workers[3]											
	1985	1986	1987	1988	1989[1]	1990	1991	1992	1993[4]	1994[4]	1995[4]	1996[4]
Nondurable goods:												
Total cases	9.6	10.0	11.1	11.4	11.6	11.7	11.5	11.3	10.7	10.5	9.9	9.2
Lost workday cases	4.4	4.6	5.1	5.4	5.5	5.6	5.5	5.3	5.0	5.1	4.9	4.6
Lost workdays	77.6	82.3	93.5	101.7	107.8	116.9	119.7	121.8	–	–	–	–
Food and kindred products:												
Total cases	16.7	16.5	17.7	18.5	18.5	20.0	19.5	18.8	17.6	17.1	16.3	15.0
Lost workday cases	8.1	8.0	8.6	9.2	9.3	9.9	9.9	9.5	8.9	9.2	8.7	8.0
Lost workdays	138.0	137.8	153.7	169.7	174.7	202.6	207.2	211.9	–	–	–	–
Tobacco products:												
Total cases	7.3	6.7	8.6	9.3	8.7	7.7	6.4	6.0	5.8	5.3	5.6	6.7
Lost workday cases	3.0	2.5	2.5	2.9	3.4	3.2	2.8	2.4	2.3	2.4	2.6	2.8
Lost workdays	51.7	45.6	46.4	53.0	64.2	62.3	52.0	42.9	–	–	–	–
Textile mill:												
Total cases	7.5	7.8	9.0	9.6	10.3	9.6	10.1	9.9	9.7	8.7	8.2	7.8
Lost workday cases	3.0	3.1	3.6	4.0	4.2	4.0	4.4	4.2	4.1	4.0	4.1	3.6
Lost workdays	57.4	59.3	65.9	78.8	81.4	85.1	88.3	87.1	–	–	–	–
Apparel and other textile products:												
Total cases	6.7	6.7	7.4	8.1	8.6	8.8	9.2	9.5	9.0	8.9	8.2	7.4
Lost workday cases	2.6	2.7	3.1	3.5	3.8	3.9	4.2	4.0	3.8	3.9	3.6	3.3
Lost workdays	44.1	49.4	59.5	68.2	80.5	92.1	99.9	104.6	–	–	–	–
Paper and allied products:												
Total cases	10.2	10.5	12.8	13.1	12.7	12.1	11.2	11.0	9.9	9.6	8.5	7.9
Lost workday cases	4.7	4.7	5.8	5.9	5.8	5.5	5.0	5.0	4.6	4.5	4.2	3.8
Lost workdays	94.6	99.5	122.3	124.3	132.9	124.8	122.7	125.9	–	–	–	–
Printing and publishing:												
Total cases	6.3	6.5	6.7	6.6	6.9	6.9	6.7	7.3	6.9	6.7	6.4	6.0
Lost workday cases	2.9	2.9	3.1	3.2	3.3	3.3	3.2	3.2	3.1	3.0	3.0	2.8
Lost workdays	49.2	50.8	55.1	59.8	63.8	69.8	74.5	74.8	–	–	–	–
Chemicals and allied products:												
Total cases	5.1	6.3	7.0	7.0	7.0	6.5	6.4	6.0	5.9	5.7	5.5	4.8
Lost workday cases	2.3	2.7	3.1	3.3	3.2	3.1	3.1	2.8	2.7	2.8	2.7	2.4
Lost workdays	38.8	49.4	58.8	59.0	63.4	61.6	62.4	64.2	–	–	–	–
Petroleum and coal products:												
Total cases	5.1	7.1	7.3	7.0	6.6	6.6	6.2	5.9	5.2	4.7	4.8	4.6
Lost workday cases	2.4	3.2	3.1	3.2	3.3	3.1	2.9	2.8	2.5	2.3	2.4	2.5
Lost workdays	49.9	67.5	65.9	68.4	68.1	77.3	68.2	71 2	–	–	–	–
Rubber and miscellaneous plastics products:												
Total cases	13.4	14.0	15.9	16.3	16.2	16.2	15.1	14.5	13.9	14.0	12.9	12.3
Lost workday cases	6.3	6.6	7.6	8.1	8.0	7.8	7.2	6.8	6.5	6.7	6.5	6.3
Lost workdays	107.4	118.2	130.8	142.9	147.2	151.3	150.9	153.3	–	–	–	–
Leather and leather products:												
Total cases	10.3	10.5	12.4	11.4	13.6	12.1	12.5	12.1	12.1	12.0	11.4	10.7
Lost workday cases	4.6	4.8	5.8	5.6	6.5	5.9	5.9	5.4	5.5	5.3	4.8	4.5
Lost workdays	88.3	83.4	114.5	128.2	130.4	152.3	140.8	128.5	–	–	–	–
Transportation and public utilities												
Total cases	8.6	8.2	8.4	8.9	9.2	9.6	9.3	9.1	9.5	9.3	9.1	8.7
Lost workday cases	5.0	4.8	4.9	5.1	5.3	5.5	5.4	5.1	5.4	5.5	5.2	5.1
Lost workdays	107.1	102.1	108.1	118.6	121.5	134.1	140.0	144.0	–	–	–	–
Wholesale and retail trade												
Total cases	7.4	7.7	7.7	7.8	8.0	7.9	7.6	8.4	8.1	7.9	7.5	6.8
Lost workday cases	3.2	3.3	3.4	3.5	3.6	3.5	3.4	3.5	3.4	3.4	3.2	2.9
Lost workdays	50.7	54.0	56.1	60.9	63.5	65.6	72.0	80.1	–	–	–	–
Wholesale trade:												
Total cases	7.2	7.2	7.4	7.6	7.7	7.4	7.2	7.6	7.8	7.7	7.5	6.6
Lost workday cases	3.5	3.6	3.7	3.8	4.0	3.7	3.7	3.6	3.7	3.8	3.6	3.4
Lost workdays	59.8	62.5	64.0	69.2	71.9	71.5	79.2	82.4	–	–	–	–
Retail trade:												
Total cases	7.5	7.8	7.8	7.9	8.1	8.1	7.7	8.7	8.2	7.9	7.5	6.9
Lost workday cases	3.1	3.2	3.3	3.4	3.4	3.4	3.3	3.4	3.3	3.3	3.0	2.8
Lost workdays	47.0	50.5	52.9	57.6	60.0	63.2	69.1	79.2	–	–	–	–
Finance, insurance, and real estate												
Total cases	2.0	2.0	2.0	2.0	2.0	2.4	2.4	2.9	2.9	2.7	2.6	2.4
Lost workday cases	.9	.9	.9	.9	.9	1.1	1.1	1.2	1.2	1.1	1.0	.9
Lost workdays	15.4	17.1	14.3	17.2	17.6	27.3	24.1	32.9	–	–	–	–
Services												
Total cases	5.4	5.3	5.5	5.4	5.5	6.0	6.2	7.1	6.7	6.5	6.4	6.0
Lost workday cases	2.6	2.5	2.7	2.6	2.7	2.8	2.8	3.0	2.8	2.8	2.8	2.6
Lost workdays	45.4	43.0	45.8	47.7	51.2	56.4	60.0	68.6	–	–	–	–

[1] Data for 1989 and subsequent years are based on the *Standard Industrial Classification Manual*, 1987 Edition. For this reason, they are not strictly comparable with data for the years 1985–88, which were based on the *Standard Industrial Classification Manual*, 1972 Edition, 1977 Supplement.

[2] Beginning with the 1992 survey, the annual survey measures only nonfatal injuries and illnesses, while past surveys covered both fatal and nonfatal incidents. To better address fatalities, a basic element of workplace safety, BLS implemented the Census of Fatal Occupational Injuries.

[3] The incidence rates represent the number of injuries and illnesses or lost workdays per 100 full-time workers and were calculated as (N/EH) X 200,000, where:

N = number of injuries and illnesses or lost workdays;
EH = total hours worked by all employees during the calendar year; and
200,000 = base for 100 full-time equivalent workers (working 40 hours per week, 50 weeks per year).

[4] Beginning with the 1993 survey, lost workday estimates will not be generated. As of 1992, BLS began generating percent distributions and the median number of days away from work by industry and for groups of workers sustaining similar work disabilities.

[5] Excludes farms with fewer than 11 employees since 1976.

– Data not available.

47. Fatal occupational injuries by event or exposure, 1992–96

Event or exposure[1]	Fatalities					
	1992	1993	1994	1995	1996	
	Number	Number	Number	Number	Number	Percent
Total	6,217	6,331	6,632	6,275	6,112	100
Transportation incidents	2,484	2,499	2,762	2,588	2,556	42
Highway incident	1,158	1,242	1,343	1,345	1,324	22
Collision between vehicles, mobile equipment	578	659	654	642	656	11
Moving in same direction	78	100	120	127	95	2
Moving in opposite directions, oncoming	201	245	230	246	214	4
Moving in intersection	107	123	144	99	153	3
Vehicle struck stationary object or equipment	192	189	255	275	240	4
Noncollision incident	301	336	373	351	348	6
Jackknifed or overturned—no collision	213	236	274	261	264	4
Nonhighway (farm, industrial premises) incident	436	392	409	389	369	6
Overturned	208	214	226	210	204	3
Worker struck by vehicle	346	365	391	388	349	6
Railway incident	66	86	81	82	75	1
Water vehicle incident	109	119	94	87	107	2
Aircraft incident	353	282	426	283	320	5
Assaults and violent acts	1,281	1,329	1,321	1,280	1,144	19
Homicides	1,044	1,074	1,080	1,036	912	15
Hitting, kicking, beating	52	35	47	46	47	1
Shooting	852	884	934	762	751	12
Stabbing	90	95	60	67	79	1
Self-inflicted injuries	205	222	214	221	199	3
Contact with objects and equipment	1,004	1,045	1,017	916	1,005	16
Struck by object	557	565	590	547	579	9
Struck by falling object	361	346	372	341	402	7
Struck by flying object	77	81	68	63	58	1
Caught in or compressed by equipment or objects	316	311	280	255	283	5
Caught in running equipment or machinery	159	151	147	131	146	2
Caught in or crushed in collapsing materials	110	138	132	99	130	2
Falls	600	618	665	650	684	11
Fall to lower level	507	534	580	577	607	10
Fall from ladder	78	76	86	97	95	2
Fall from roof	108	120	129	143	148	2
Fall from scaffold, staging	66	71	89	82	88	1
Fall on same level	62	49	63	53	49	1
Exposure to harmful substances or environments	605	592	641	609	523	9
Contact with electric current	334	325	348	348	279	5
Contact with overhead power lines	140	115	132	139	116	2
Contact with temperature extremes	33	38	50	56	32	1
Exposure to caustic, noxious, or allergenic substances	127	116	133	107	119	2
Inhalation of substances	83	68	84	62	75	1
Oxygen deficiency	111	112	109	97	92	2
Drowning, submersion	78	90	89	77	67	1
Fires and explosions	167	204	202	207	184	3
Other events or exposures[2]	76	44	24	25	16	–

[1] Based on the 1992 BLS Occupational Injury and Illness Classification Structures.

[2] Includes the category "Bodily reaction and exertion."

NOTE: Totals for major categories may include subcategories not shown separately. Percentages may not add to totals because of rounding. Dashes indicate less that 0.5 percent or data that are not available or that do not meet publication criteria.

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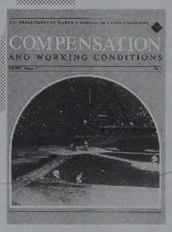

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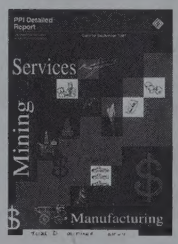

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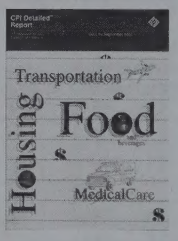

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Employment situation	March 6	February	April 3	March	May 8	April	5, 6
Productivity and costs	March 10	4th quarter			May 7	1st quarter	5, 6
U.S. Import and Export Price Indexes	March 12	February	April 15	March	May 12	April	5
Producer Price Indexes	March 13	February	April 9	March	May 13	April	5, 6
Consumer Price Indexes	March 19	February	April 14	March	May 14	April	5, 6
Real earnings	March 19	February	April 14	March	May 14	April	5
Employment Cost Indexes			April 30	1st quarter			5, 6